

Forestry Giant Discovers Downside of Planting Millions of Trees

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A multi-decade state program to subsidize tree planting in one of South America's wealthiest nations led to a loss of biodiversity and did little to increase the forests' capacity to capture greenhouse gases.

Chile's plantation forests more than doubled between 1986 and 2011, while native forests shrunk by 13%, according to a new report by U.S. and Chilean academics. The country subsidized tree planting while its forestry sector boomed over that period.

Yet the environmental benefits are not as clear. Subsidies accelerated biodiversity losses in Chile as plantations often focus on one or two profitable tree species, the report said. While forest area expanded by more than 100% between 1986 and 2011, the carbon stored in vegetation increased by just 1.98% during that period.

"Our simulations indicate that plantation subsidies accelerated biodiversity losses in Chile by encouraging the expansion of plantations into more biodiverse forests," researchers said in the paper published in *Nature Sustainability* on Monday. Chile's case "provides several cautionary lessons," according to Robert Heilmayr at the University of California Santa Barbara, Cristian Echeverria at Universidad de Concepcion in Chile and Eric F. Lambin at Stanford University.

Planting trees can increase biodiversity and fight soil erosion. Forests have the capacity to absorb carbon dioxide in the atmosphere, becoming so-called "carbon sinks" that contribute to mitigating the greenhouse gas emissions responsible for global warming. But Chile's case shows that planting trees at a large scale is expensive—and might not contribute much to the fight against climate change.

Government records cited by researchers indicate that Chile paid an average of \$447 per hectare—or \$408 million—to plant an area of 912,000 hectares, almost three times the size of Rhode Island. About 4.7% of the native forest loss that occurred during these years is a result of subsidies.

Reforestation has become a popular initiative among world leaders. In February, U.S. President Donald Trump touted the Trillion Tree Initiative, a World Economic Forum-sponsored plan to plant a trillion trees globally by 2050. Germany's Bonn Challenge, which aims to restore an area equivalent to 30% of the world's forest, has been endorsed by 40 countries.

Chile burnt down and cleared vast areas of native forests for farmland, including oaks and giant redwoods, when immigrants arrived in its southern region after the 1850s. Much of that farmland has now been replaced by massive plantations of pine and eucalyptus trees with little wildlife, areas that have helped spread fires in the past few years.

Chile started subsidizing tree planting in 1931 as a way to reduce erosion in agricultural lands and to replace lost imports in the wake of the great depression, researchers said. The country's current model has been widely replicated by Argentina, Ecuador, Colombia and a variety of international development projects, the paper said.

"Many countries with afforestation incentives continue to clear native forests," the paper said. Forest plantations and agroforestry systems represent 79% of forest restoration committed by 24 countries through 2019, the authors wrote.

Chile's program was successful from an economic perspective. Forestry and tree products such as wood and cellulose accounted for exports of \$2.3 billion in 2019, or 3.3% of the country's total, according to Chile's central bank. Companies such as Empresas CMPC SA or Celulosa Arauco y Constitucion SA are among the world's top forestry producers.

However, it was also expensive, and did not generate vast areas of new forest. The paper estimated that Chile's government paid 30 times more per hectare to subsidize additional plantations that would not have been planted because of market demand for forestry products. Just over 3% of plantation expansion 1986 and 2011 can be attributed to subsidies rather than market forces.

Source: <https://www.bloomberg.com/news/articles/2020-06-22/forestry-giant-discovers-downside-of-planting-millions-of-trees>