

Go west, young pine: US forests shifting with climate change

17 May 2017, by Seth Borenstein



In this photo provided by Songlin Fei, Purdue University, taken May 16, 2017, an Eastern white pine tree. Eastern white pine trees in the U.S. have moved more than 80 miles west since the early 1980s, according to a new study. by Songlin Fei of Purdue University. A warmer, wetter climate is helping push dozens of Eastern U.S. trees to the north and, surprisingly, west, a new study finds. (Songlin Fei/Purdue Univesity via AP)

A warmer, wetter climate is helping push dozens of Eastern U.S. trees to the north and, surprisingly, west, a new study finds.

The eastern white pine is going west, more than 80 miles (130 kilometers) since the early 1980s. The eastern cottonwood has been heading 77 miles north (124 kilometers), according to the research based on about three decades of forest data.

The northward shift to get to cooler weather was expected, but lead author Songlin Fei of Purdue University and several outside experts were surprised by the move to the west, which was larger and in a majority of the species.

New trees tend to sprout farther north and west while the trees that are farther south and east tend

to die off, shifting the geographic center of where trees live. Think of it as a line of people stretching, said Fei.

Detailed observations of 86 different tree species showed, in general, the concentrations of eastern U.S. tree species have shifted more than 25 miles west (45 kilometers) and 20 miles (33 kilometers) north, the researchers reported in the journal *Science Advances* on Wednesday.

One of the more striking examples is the scarlet oak, which in nearly three decades has moved more than 127 miles (205 kilometers) to the northwest from the Appalachians, he said. Now it's reduced in the Southeast and more popular in the Midwest.



In this Feb. 6, 2007 file photo, an Eastern white pine seedling is held in Nebraska City, Neb. A warmer, wetter climate is helping push dozens of Eastern U.S. trees to the north and, surprisingly, west, a new study finds. (AP Photo/Nati Harnik, File)

"This analysis provides solid evidence that changes are occurring," former U.S. Forest Chief Michael Dombeck said in an email. "It's critical that we not

ignore what analyses like these and what science is telling us about what is happening in nature."

The westward movement helped point to [climate change](#)—especially wetter weather—as the biggest of many culprits behind the shift, Fei said. The researchers did factor in people cutting down trees and changes to what [trees](#) are planted and where, he said.

With the Southeast generally drying and the West getting wetter, that explanation makes some sense, but not completely, said Brent Sohngen at Ohio State University, who was not involved in the study.

"There is no doubt some signature of climate change," he said in an email. But given the rapid rates of change reported, harvesting, forest fires and other disturbances, are probably still playing a more significant role than [climate](#) change, he wrote

More information: S. Fei et al., "Divergence of species responses to climate change," *Science Advances* (2017).

advances.sciencemag.org/content/3/5/e1603055

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