

How efficiently different US forests will remove atmospheric carbon in the future

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Forests absorb carbon by capturing carbon dioxide from the atmosphere, making forest carbon stocks an important resource against climate change. In research published in *Ecology and Evolution*, investigators

examined existing tree regeneration patterns to develop an indicator of potential changes to future carbon stocks across forests in the northeastern and midwestern United States.

The scientists' comparison of carbon stock predictions from tree and seedling composition suggested that 29% of plots were poised to lose carbon based on seedling composition, 55% were poised for replacement of carbon stocks, and 16% were poised to gain carbon. Forests predicted to lose carbon tended to be on steeper slopes, at lower latitudes, and in rolling upland environments.

The findings may help managers identify areas that are most vulnerable to losing carbon storage capacity so that they can prioritize these areas when developing strategies to increase tree regeneration and secure resilient [forest](#) carbon stocks.

"It is important to take tree seedlings into account when we are thinking about long-term forest carbon storage because tree seedlings shape the future of our forests," said corresponding author Lucas B. Harris, Ph.D., of the University of Vermont. "We hope that our work generates discussion about how to manage tree regeneration to promote resilient and carbon-rich forests in the context of threats such as [climate change](#) and [invasive species](#)."

More information: Sapling recruitment as an indicator of carbon resiliency in forests of the northern USA, *Ecology and Evolution* (2024). [DOI: 10.1002/ece3.70077](https://doi.org/10.1002/ece3.70077)

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