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• REPORT

Species Loss and Aboveground Carbon Storage in a Tropical Forest

Daniel E. Bunker^{1,*}, Fabrice DeClerck², Jason C. Bradford³, Robert K. Colwell⁴, Ivette Perfecto⁵,
Oliver L. Phillips⁶, Mahesh Sankaran⁷, Shahid Naeem¹

□ Author Affiliations

¹ Department of Ecology, Evolution, and Environmental Biology, Columbia University, New York, NY 10027, USA.

² Earth Institute, Columbia University, New York, NY 10027, USA.

³ Center for Conservation and Sustainable Development, Missouri Botanical Garden, St. Louis, MO 63166, USA.

⁴ Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs, CT 06269, USA.

⁵ School of Natural Resources and Environment, University of Michigan, Ann Arbor, MI 48109, USA.

⁶ Earth and Biosphere Institute, School of Geography, University of Leeds, Leeds LS 9JT, UK.

⁷ Natural Resource Ecology Laboratory, Colorado State University, Fort Collins, CO 80523, USA.

^{1,*} To whom correspondence should be addressed. E-mail: deb37@columbia.edu

ABSTRACT

Tropical forest biodiversity is declining, but the resulting effects on key ecosystem services, such as carbon storage and sequestration, remain unknown. We assessed the influence of the loss of tropical tree species on carbon storage by simulating 18 possible extinction scenarios within a well-studied 50-hectare tropical forest plot in Panama, which contains 227 tree species. Among extinction scenarios, aboveground carbon stocks varied by more than 600%, and biological insurance varied by more than 400%. These results indicate that future carbon storage in tropical forests will be influenced strongly by future species composition.

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