

Tropical forests just got a little more diverse

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Biologist Kenneth J. Feeley pictured during a research trip to Tres Cruces, Peru in 2008.

After decades of relying on scientific opinion, an international team of researchers has come close to determining the number of tree species in the tropics.

According to a study published in the *Proceedings of the National Academy of Sciences (PNAS)*, there are at least 40,000 tropical [tree species](#), and possibly more than 53,000, in the world's tropical forests in the Americas, continental Africa and the Indo-Pacific region. This study is the first to provide a survey-based estimate of tropical tree species richness and distribution, surpassing current estimates of 37,000-50,000 tropical tree species.

Florida International University Biology Professor Kenneth J. Feeley is one of 173 researchers who contributed to the study. Feeley, who has spent more than 15 years studying the ecology, biogeography and conservation of [tropical plant](#) and animal communities, provided data on the tree species diversity and composition of the forests in eastern Venezuela. His data was combined with similar datasets from other [tropical forests](#) worldwide to generate the estimates and species diversity maps that are reported in the study.

The researchers found the Indo-Pacific region had tree species diversity similar to that found in the neotropics of the Caribbean, Central America and South America. This finding contradicts the widely held view that the neotropics are the most species-rich region for tropical trees. The high [species diversity](#) in the Indo-Pacific region is due to its high variation of land features, complex geology, abrupt changes in the environment, and ongoing merging of different plants.

The study also supports theories that African forests have experienced severe extinction events after the team of researchers determined the

continent's tropical areas lack variety in tree species.

"The current estimate is just a first step in an ongoing effort. Estimates of species richness will become more refined and increasingly accurate as forest surveys continue to expand," Feeley said. "This study highlights the importance of surveys. We also emphasize the existence of large numbers of tree species with small population sizes, which may require novel conservation approaches."

More information: *PNAS* vol. 112 no. 24, 7472–7477, [DOI: 10.1073/pnas.1423147112](https://doi.org/10.1073/pnas.1423147112)

Provided by Florida International University

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