

Researchers cataloging plant species are trying to decipher what makes some groups so successful

May 29 2024



Credit: Pixabay/CC0 Public Domain

Irish researchers involved in cataloging the world's plant species are hunting for answers as to what makes some groups so successful.

One of their major goals is to predict more accurately which lineages of flowering plants—some of which are of huge importance to people and to ecosystems—are at a greater risk from [global climate change](#).

There are about 350,000 species of flowering plants on Earth, and each one is organized into a group called a genus, made up of closely related species with structural similarities. Some genera are small with just a [single species](#) (with relatively unique traits), but others are disproportionately large and contain thousands of species.

The "big plant genera" form a significant proportion of both global and Irish plant diversity, and are of disproportionate importance for both [human nutrition](#) and planetary health. Roughly 1 in 4 flowering plant species is a member of one of these.

Twenty years after the first assessment of big plant genera, research led by Trinity College Dublin and [published](#) today (May 29) in the *Proceedings of the Royal Society B: Biological Sciences* shows that these big genera are getting bigger and bigger as more and more species are described.

In fact, more than 10,000 species have been described in just 83 big genera since the year 2000, which is about 2.5 times the size of the total flora of Ireland.

Dr. Peter Moonlight, Assistant Professor in Trinity's School of Natural Sciences, led the just-published study. He said, "Until recently, big plant genera were seen as too large to study. But a recent revolution in methods in plant science and the development of global, collaborative networks has allowed us to update our understanding of plant evolution and global plant diversity.

"We now hope to identify common patterns across big plant genera that

may explain why they are big when the other 99% of genera are small. Perhaps they have similar distributions, genetics, or morphology—we don't know yet, but this study is a key step to starting to understand this important evolutionary question.

"Big genera represent lineages of flowering plants that have been extremely successful in the game of evolution. Understanding why they became so successful may help us predict how they and other lineages on the tree of life will respond to the ongoing climate and biodiversity crises.

"Given that species in these big genera often have narrow ecological ranges in which they flourish, they may be more likely to be threatened by extinction as and when conditions change. They are a significant proportion of our global biodiversity, so perhaps we need to focus our conservation efforts most keenly on them."

More information: Peter W. Moonlight et al, Twenty years of big plant genera, *Proceedings of the Royal Society B: Biological Sciences* (2024). [DOI: 10.1098/rspb.2024.0702](https://doi.org/10.1098/rspb.2024.0702)

Provided by Trinity College Dublin

Citation: Researchers cataloging plant species are trying to decipher what makes some groups so successful (2024, May 29) retrieved 20 June 2024 from <https://phys.org/news/2024-05-species-decipher-groups-successful.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.