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Nearly 600 plant species have gone extinct in last 250 years

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- At least 571 species of seed-bearing plants have gone extinct around the world in the last two and a half centuries.
- This number is nearly four times higher than the previous known estimate and more than twice the number of birds, mammals and amphibians that are known to have gone extinct, researchers say.
- The study estimates that plants are now becoming extinct nearly 500 times faster than the background extinction rate for plants.
- The geographical pattern of modern plant extinctions resembles that for animals: most plant extinctions occur on islands, in the tropics, and in areas with a Mediterranean climate that are rich in biodiversity.

When plants slide into extinction, they rarely make news. But more species of plants have disappeared from our planet than previously thought, a recent study has found. Since botanist Carl Linnaeus published *Species Plantarum*, a compendium of every known plant until 1753, at least 571 species of seed-bearing plants have gone extinct around the world. This number is nearly four times higher than the previous known estimate of around 150 plant species officially recognized as extinct in the IUCN Red List of Threatened Species. The number is also more than twice the number of birds, mammals and amphibians that are known to have gone extinct though this is partly because there are more species of plants in general, researchers say. The true figure of plant extinction is also likely to be much higher, the researchers add, since the list includes only those species that scientists have looked for and recorded. “The real figure is undoubtedly higher, and a continued effort is underway to assess the threat status of each plant species,” Rafaël Govaerts, a co-author of the study and a botanist at the Royal Botanic Gardens, Kew, U.K., writes in a blogpost. By combining information from the Red List, research papers, field work and herbaria, Govaerts found that on average at least two species of plants have gone extinct each year for the past 250 years. Among the extinct plants is the Chile sandalwood (*Santalum fernandezianum*), a tree that was overexploited for its aromatic wood, and was last photographed on Robinson

Crusoe Island in 1908. Then there was the banded trinity (*Thismia americana*), a plant with no leaves and only flowers that are visible above ground, found in wetlands around Chicago's Lake Calumet. The site where it used to occur was converted for industrial development, and the plant, despite extensive searches, has never been seen again. "Many more plants are only known from their original collection or historic specimens. All need to be searched for again to document surviving populations and protect them from the continued destruction of wild places and devastation to ecosystems," Govaerts writes. Plant extinctions, like animal extinctions, occur naturally. But the study estimates that plants are now becoming extinct nearly 500 times faster than the background extinction rate, or the speed at which they've been disappearing before human impact. The geographical pattern of modern plant extinctions resembles that for animals: most plant extinctions occur on islands, in the tropics, and in areas with a Mediterranean climate regions that are rich in biodiversity and tend to harbor several unique species. The team also found that trees and shrubs, and plants that have a small geographical range, are more likely to go extinct. "This study is the first time we have an overview of what plants have already become extinct, where they have disappeared from and how quickly this is happening," Aelys M. Humphreys, lead author of the study and an assistant professor at Stockholm University, said in a statement. "We hear a lot about the number of species facing extinction, but these figures are for plants that we've already lost, so provide an unprecedented window into plant extinction in modern times." With updated figures in hand, researchers hope to be able to better predict and prevent future extinctions. "Millions of other species depend on plants for their survival, humans included, so knowing which plants we are losing and from where, will feed back into conservation programmes targeting other organisms as well," Eimear Nic Lughadha, a co-author and scientist at Royal Botanic Gardens, Kew, said in the statement.

Citation:

Humphreys A. M., Govaerts R., Ficinski, S. Z., Lughadha, E. N. and Vorontsova, M. S. (2019) Global dataset shows geography and life form predict modern plant extinction and rediscovery. *Nature Ecology and Evolution*, DOI: 10.1038/s41559-019-0906-2.

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