

PLANT EXTINCTION

Geographic and life-form patterns

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While the modern extinction of birds and mammals has been relatively well documented, comprehensive global analyses of plant extinction are lacking due to a lack of proper datasets. To better enable our understanding of modern plant extinction, Aelys M. Humphreys, from Stockholm University, and colleagues, from the Royal Botanic Gardens, Kew, analysed a previously unpublished database of extinct seed plant species documented since Linnaeus' *Species Plantarum*. Their study highlights geography and life form as good predictors for modern plant extinction and rediscovery.

Among the 1,319 species reported as extinct, the researchers validated 571 as accurate extinct species, 431 as rediscovered species and the rest to be synonymized species. Overall, plants become extinct more slowly than vertebrates and amphibians, and recently described plants become extinct faster than those described before 1900.

Geographically, plants showed an extinction pattern similar to animals — that is, top extinction regions are biodiversity hotspots with a tropical or Mediterranean climate, including islands and the Pacific. Extinct species tend to have narrower distribution ranges and to be woody perennials rather than herbaceous perennials or epiphytes. Unlike animals, extinct plants are phylogenetically randomly distributed, indicating that they have different extinction processes.

The global rediscovery rate of 'extinct' plant species is estimated to be 35%. Rediscovered species show consistent geographical and phylogenetic patterns with extinct species. However, contrary to extinction, rediscovery tends to occur on continents but not on islands. Moreover, rediscovered species have broader geographic distributions and a higher proportion of annual herbs, which have low detectability and thus are more prone to be erroneously reported as extinct compared to extinct species.

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