

Pollinators contribute to flowering plant diversity

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Holden Forests & Gardens (HF&G) Scientist Na Wei, Ph.D., and her collaborators from the University of Pittsburgh and East Tennessee State University discovered how pollinators may contribute to the maintenance

of flowering plant diversity. This study that accelerates our understanding of biodiversity conservation is now published in the journal *Nature*.

"For years, scientists have been puzzled by how numerous rare plant species coexist with abundant species in [diverse communities](#)," said Dr. Na Wei. "We believe that pollinators can be one critical piece of this puzzle."

Pollinator service is often limited in nature, and so plants compete with one another for those pollinators. One way to overcome pollinator limitation, is for plants to form specialized relationships with some pollinators, thereby ensuring that pollinators are available for plant fertilization.

Dr. Wei and her colleagues worked for two years in serpentine grassland of the McLaughlin Natural Reserve in California. Over that time, they monitored 416 [pollinator species](#) that visited 79 different flowering plant species. Pollinators included bees, wasps, flies, butterflies, moths, and hummingbirds.

Dr. Wei and her colleagues found that specialization between flowering plants and pollinators was greater than expected, and [rare plants](#) seemed more likely to form specialized relationships with pollinators to ensure their reproduction and persistence. What's more, flower characteristics were important predictors of specialization, with plants having pea-like flowers more specialized than plants with aster-like flowers, for example.

Dr. Wei and her colleagues also found that not all rare plant species had specialized pollinators but had to use the shared pollinator services. For these rare plants, pollinators that were primarily attracted by abundant species can stop by and pick up rare species pollen as well. This benefits

[rare species](#) at the cost of [abundant species](#).

The results of this study have clear implications for conservation of native plants and natural systems. It suggests that to conserve rare plant species and diverse plant communities, we also need to conserve the diversity of pollinators that plants depend on for reproductive success. Dr. Wei and her colleagues emphasized in their paper that "in light of pollinator losses worldwide and climatically induced shifts in plant abundances, understanding how [pollinators](#) contribute to the persistence of rare plant species is arguably one of the most critical tasks for biodiversity conservation in the Anthropocene."

More information: Na Wei et al, Pollinators contribute to the maintenance of flowering plant diversity, *Nature* (2021). [DOI: 10.1038/s41586-021-03890-9](#)

Provided by Holden Forests & Gardens

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