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# DISRUPTION OF A KEYSTONE INTERACTION ERODES POLLINATION AND SEED DISPERSAL NETWORKS

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## Study Description

We studied whether the disruption of a hummingbird–mistletoe–marsupial mutualism by the invasion of nonnative species can have cascading effects on both pollination and seed dispersal networks in the temperate forest of Patagonia, Argentina. We found that the hummingbird–mistletoe–marsupial mutualism plays a critical role in the community by increasing the complexity of pollination and seed dispersal networks. Moreover, we found that the disruption of this tripartite mutualism by nonnative ungulates resulted in diverse indirect effects that led to less complex pollination and seed dispersal networks.

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Photo 1. A seed disperser marsupial (*Dromiciops gliroides*) hangs on a bamboo (*Chusquea culeou*) in the temperate forest of Patagonia. The marsupial is a member of a keystone interaction and provides an efficient seed dispersal service by dispersing at least 16 fleshy fruited species, including large fruits not dispersed by the native birds. In addition, the arboreal marsupial consumes bird eggs and insects. Photograph credit: Mariano A. Rodríguez-Cabal.



Photo 2. Flowers of the mistletoe (*Tristerix corymbosus*) covered by snow in the Patagonian winter. The mistletoe is a member of a keystone interaction, and its nectar is the only resource for pollinators during winter. In addition, the mistletoe depends on the arboreal marsupial (*Dromiciops gliroides*) for its persistence because passage through the marsupial's gut is crucial to trigger seed germination. Photograph credit: Mariano A. Rodríguez-Cabal.

These photographs illustrate the article "The disruption of a keystone interaction erodes pollination and seed dispersal networks" by Agustin Vitali, Yamila Sasal, Diego P. Vázquez, M. Florencia Miguel published in *Ecology*. https://doi.org/10.1002/ecy.3547.