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## **Pollination community structure revisited: A critical examination of networking statistics and a proposed modeling technique to permit cross site networking comparisons of field data**

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24 datasets from 1971-1979 on pollination systems in California, Chile and Colorado, supplemented by current studies in Oregon, are re-examined in terms of current networking biostatistics. The original matrices are based on random walks through 0.5 km<sup>2</sup> research sites with 10 replicate plant censuses each. The current samples are based on 10 replicate 3m x 3m sites in 15 separate subalpine meadows with intensive observation for 15 minutes each week through the blooming season. Taxonomic guild structure of pollinators along the Pacific Coast is determined largely by linear increases in richness with decreasing latitude for bees, wasps and bombyliids and with increasing latitude for *Cerambycidae* and *Syrphinae*. Analyses with 14 current biostatistics for networking in R Bipartite revealed that all were auto-correlated with sample size/intensity, and as such were inappropriate comparative measures between sites. Empty cells in the interaction matrices (always >66%) are of concern; the fundamental problem of empty cells is determining whether they are truly zero, or represent insufficient sample effort. Development of simulation models to allow extrapolation of comparative community matrices to the same intensities/sample sizes requires a solution to the dilemma of empty cells. Multiple descriptors of community matrices are presented and a potential method of simulation modeling is proposed. The log-normal distribution of undisturbed pollinator abundances in all locations demonstrates that >70% of the pollinator richness is maintained at extremely low population densities, presumably with frequent local extinctions and requisite subsequent re-colonization; therefore, landscape fragmentation has enormous consequences for regional extinction.

### **Biography**

A R Moldenke is a semi-retired insect Ecologist with research experience in the fields of pollination and soil ecology. He has more than 60 publications dealing with numerous interacting systems.

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