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## The Australian-Asian Connection – Biological Free Trade or Historical Barriers?



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The separation between the Australian and Asian biogeographical regions is one of the most celebrated. Alfred Russel Wallace set the ball rolling and the dynamic interaction between the faunas of the two regions has remained a subject of considerable interest ever since. For some taxa Wallace's line continues to have at least a heuristic reality. Once beyond the vertebrates, however, other steep geographical boundaries, reflecting current, or at least post-geological, time-scales are much more in evidence. Traditionally biogeography has sought explanations for the distributions of particular taxa, yet from an ecological and conservation viewpoint a whole-community approach leads to new insights. We have surveyed the trees and invertebrates in a standard manner at ten one-hectare plots of more or less undisturbed rainforest from south-east Queensland to southern Vietnam. Complimentary but less complete studies have been made in south-eastern China and in some Neotropical locations. Taxonomic impediments and the sheer size of survey collections make the analyses ponderous yet substantial progress has been made in understanding the patterns of Coleoptera, Diptera, Lepidoptera, Formicidae, Acari and Araneida. Selected results will be presented to illustrate the utility of the approach. Using patterns in beetle, moth and fly assemblages we show that interpretable patterns in assemblage-level characteristics occur across this massive transect. Appropriate explanatory hypotheses include deep-time separation, Tertiary and Quaternary connections, current geography and degree of disturbance. The faunas of the ten sites mirror patterns seen in the tree flora. It is of concern, though, that long-standing biogeographical patterns are all too readily overlaid with anthropogenic changes. The responses to such human disturbances may be geographically quite uniform leading to a community-level 'macdonaldization' of the fauna.

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