

How good are collection records at representing New Zealand environments?

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Entomology Collections play a central role as sources of data for biodiversity and conservation. Yet, few collections have examined whether the data they contain is adequately representative of local biodiversity. I examined over 15,000 databased records of Hymenoptera from 1435 locations across New Zealand collected over the past 90 years. These records are assessed in terms of their geographical, temporal, and environmental coverage across New Zealand. Results showed that the spatial coverage of records was significantly biased, with the top four areas contributing over 51% of all records. Temporal biases were also evident, with a large proportion (40%) of records collected within a short time period. The lack of repeat visits to specific locations indicated that the current set of records would be of limited use for long-term ecological research. Consequently, analyses and interpretation of historical data, for example, shifts in community composition, would be limited. However, in general, collection records provided good coverage of the diversity of New Zealand habitats and climatic environments, although fewer collection records were represented at cooler temperatures (less than 5C) and the highest rainfalls (over 5000 mm/yr). Analyses of collections can be greatly enhanced by using simple techniques that examine collection records in terms of environmental and geographical space. Collections that initiate a systematic sampling strategy will provide higher quality data for biodiversity research than ad hoc or point samples, as is currently the norm. Although collections potentially provide a rich source of information they could be far better utilised in a range of large-scale ecological and conservation studies.

