

Negative occurrence patterns of two native ant species (*Monomorium antarcticum* and *Prolasius advenus*) within beech forests

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What are the factors that influence species distributions and abundances? *Monomorium antarcticum* and *Prolasius advenus* are native, generalist and ubiquitous ant species in New Zealand. Our study examines the spatial distribution of these species, as well as disentangling the mechanisms determining patterns. Two 1 km² sites were sampled; one in South Island (Nelson Lakes) and one in the North Island (Kaitoke Regional Park). Results indicate that these species present negative co-occurrence patterns. In beech forests *Prolasius* is very abundant and seem to exclude *Monomorium*, as this ant is only found in grassy areas or forest edges. However, some *Prolasius* nests can be found in open areas. Observations in the laboratory highlighted behavioral mechanisms that could explain these patterns. *Prolasius* is dominant over *Monomorium*, spraying acid and biting them, indicating that *Prolasius* may be an aggressive-key species in the ant community. Overall our results suggest that competition may play an important role in determining the ant mosaic in New Zealand beech forests.

