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Exploring functional diversity of arboreal ants in New Guinea rainforests

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Functional diversity indices may be a more appropriate indication of ecosystem functioning than traditional taxonomic diversity indices. For ants, there is an increasing number of studies on the effects of disturbance in the functioning of terrestrial, ground dwelling ant communities. However, in tropical forests, trees harbour a large proportion of insect diversity and ants play a major role in canopy dynamics. To explore for the first time how functional diversity of arboreal ant communities can be affected by forest disturbance, we measured a selection of morphological traits of 124 species of arboreal ants collected from 0.5ha whole forest plots of primary and secondary lowland rainforest in Papua New Guinea. We compare the multidimensional trait space of the two habitats and investigate how vegetation characteristics such as tree size, species and leaf biomass influence ant functional diversity and which ecological traits, related to feeding or foraging, are responsible for these differences. Additionally, we explored if certain ant traits are correlated with particular nesting habitats. We hypothesise that the more open environment in secondary forest communities may select for ant communities with more heat tolerant and desiccation resistant traits such as large body size and increased sculpturing