

## Chapter 10

### Ants of the Muller Range, Papua New Guinea

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#### SUMMARY

A survey of ants at three sites in the Muller Range of Southern Highlands and Western Provinces, Papua New Guinea documented 237 species of ants belonging to 56 genera. At least 31 of these species (13%) are new to science. At the lowland site (500 m elevation) 177 species were collected, of which 19 (11%) are species new to science; at mid-elevation (1,600 m) 79 species were found, 16 (20%) of which are new to science; at high elevation (2,875 m) two ant species were found, one of which is new to science. Of the 237 species of ants encountered, only 21 (9%) were found at more than one site and hence local patchiness may be an important driver of diversity across these sites. In addition to discoveries of species new to science, collections from this survey extended the known elevational limit of ants in New Guinea from 2,600 m to 2,875 m. The close association of many ant species with ant-plant hosts, and apparent lack of any introduced ant species to this region contribute to a unique and diverse ant fauna in this largely intact rainforest habitat, which we strongly recommend be prioritized for conservation.

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#### INTRODUCTION

One of the great success stories in the history of life on Earth, ants (Hymenoptera: Formicidae) are dominant and essential components of most of the world's terrestrial ecosystems. Ants are speciose, with over 12,500 described species belonging to nearly 300 genera in 22 subfamilies (Bolton et al. 2006), accounting for 1% of all described insect species. They are also abundant, comprising an approximated 10% of the terrestrial animal biomass in tropical forests alone (Agosti et al. 2000). Ants perform many roles in ecosystems: they are predators, scavengers, seed harvesters and cultivators of fungus. The services they provide to the ecosystem include improving soil, spreading plant seeds, pollinating flowers and consuming dead small animals. The utility of many of these services extends to humans, including ants' ability to control pest insects. Because of their diversity and their key ecosystem functions, ants also constitute important subjects for monitoring and evaluating environmental conditions and biodiversity status. As part of a biodiversity assessment of the remote Muller Range in Papua New Guinea, ant diversity was assessed at three sites in Western and Southern Highlands provinces. Although previous work has focused on New Guinea ants in general (Janda 2010) or at other lowland sites (Snelling 1998), no surveys of ants in the Muller Range had been conducted prior to this study.