

Chapter 12

Dragonflies and Damselflies of the Muller Range, Papua New Guinea

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SUMMARY

We conducted a survey of dragonflies at three elevations in the Muller Range of central-western Papua New Guinea (PNG) from 4-25 September 2009. Thirty-six species were documented, of which 31 were found only at the lowland site. Diversity at Camp 1 (Gugusu; ~500 m) was similar to that documented from the limited number of other sites studied in the central mountain range, and the dragonfly community conformed with a number of patterns previously observed at low elevations in the central ranges: (1) Higher level taxonomic diversity (number of families) is high in proportion to the number of species; (2) the majority of species are dependent on running water; (3) most of the species associated with running water are endemic to New Guinea while most species occupying standing water habitats are more widespread and often also occur outside New Guinea. At least six species new to science were found at Gugusu reinforcing the view that many species of dragonflies still await discovery in New Guinea. This is probably especially so for the southern slopes of the central mountain range in PNG because this area remains relatively unexplored. Diversity was extremely low at Camp 2 (Sawetau; 1,600-2,000 m; 1 species) and Camp 3 (Apalu Reke; 2,875 m; 4 species). The karst area at camp 2 is largely devoid of aquatic habitats and hence has a very poor dragonfly fauna. Camp 3 was above the altitudinal limit of all but a few species. However the discovery of the presumed larvae of *Papuagrion* at Camp 3 constitutes the first record of larvae of this genus. Its life-style (aboreal and semi-terrestrial) is unique among dragonflies and warrants more research.

We also report on a small collection of dragonflies assembled during the 2008 RAP survey at Tualapa near Wanakipa Village in the upper Strickland River catchment on the northern edge of the Muller Range. Opportunistic collecting at elevations between 845-1,422 m around Tualapa Camp documented 18 species of dragonflies including only the second records of the poorly known *Hylaeargia magnifica* and the recently described *Argiolestes verrucatus*.

INTRODUCTION

A short introduction to dragonflies and damselflies

Dragonflies (including damselflies) are well-known insects, due to their often striking colours and remarkable powers of flight. The larvae of most species live in running and standing freshwater environments, but some are tolerant of brackish and salty waters and a few even live in moist terrestrial habitats. Many species have small ranges, and are specific to certain habitats such as mountain bogs or seepages. Dragonflies are frequently used as indicators of environmental health and their sensitivity to habitat quality (e.g. forest cover, water chemistry), their amphibious life cycle, and the relative ease of their identification make them equally well suited for evaluating environmental changes in the long term (biogeography, climatology) and in the short term (water pollution, structural alteration of aquatic and riparian habitats). Dragonflies are recognized by their long and slender abdomen, their large globular eyes,