



# Studies in the orthopteran fauna of Melanesia: New katydids of the tribe *Agraeciini* from Papua New Guinea (Orthoptera: Tettigoniidae: Conocephalinae)

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## Abstract

Two new genera (*Ingrischia* n. gen. and *Pandanagraecia* n. gen.) and 15 new forest species of Agraeciini (Orthoptera: Tettigoniidae) from New Britain and central Papua New Guinea are described: *I. macrocephala* n. sp., *P. poregera* n. sp., *P. armata* n. sp., *P. bifurcata* n. sp., *P. stylata* n. sp., *Salomona richardsi* n. sp., *Pseudonicsara* (*P.*) *fascifrons* n. sp., *P.* (*P.*) *gugusu* n. sp., *Anthracites nakanaiensis* n. sp., *Gonatacanthus gahavisuka* n. sp., *Microsalomona sawetau* n. sp., *M. brachyptera* n. sp., *Scytocera smaragdifrons* n. sp., *Philmontis lobatus* n. sp., and *Trichophallus tricuspis* n. sp. Stridulations of *S. richardsi* and *S. godeffroyi* (Pictet) are described.

**Key words:** Orthoptera, katydids, Papua New Guinea, Conocephalinae, Melanesia

## Introduction

Although a recent study by Novotny et al. (2007) significantly tempers the estimates of plant-associated insect species expected to live in the forests of New Guinea, the richness and levels of endemism of most groups of organisms of New Guinea and the Bismarck Archipelago are very high (Marshall and Beehler 2007). There are no reasons to doubt that the katydid fauna of this area is similarly rich and unique, but the Tettigoniidae of New Guinea and surrounding islands have never been systematically studied, and most of the approximately 325 species recorded from this region of Melanesia were described based on specimens collected during the period of early colonial exploration (primarily from the material collected by Lajos Biro and Otto Schlaginhaufen in the 1890–1900's, and the German Kaiserin-Augusta-River Expedition of 1912–13.) The most significant contributions to the knowledge of the Tettigoniidae of the islands were those by Karny (1907, 1911, 1912, 1920, 1924, 1926)—58 species described; Bolivar (1890, 1898, 1902, 1903, 1905)—40 species described; and Willemse (1933, 1940, 1957, 1958, 1959, 1961a, 1961b, 1966 1977, 1979)—37 species described. More recently, Jin (1992) reviewed the tribe Phisidini, and Ingrisch (2008, 2009) genera *Paramacroxiphus* Willemse and *Pseudonicsara* Karny, and both described a number of Papuan species. The proportion of species from New Guinea that were described as new in these two authors' works was 78% and 81%, respectively, which gives a good indication of the enormous amount of work still needed to fully understand its katydid fauna.

The tribe Agraeciini, defined here according to the diagnosis by Ingrisch (1998), is represented in New Guinea and the Bismarck Archipelago by 117 species, making it the most speciose group of the Tettigoniidae in the region. Both the work of S. Ingrisch, and the results of the surveys described below indicate that at least twice as many species of Agraeciini may live there.

By comparison, Rentz (2010) listed 9 genera including 21 described species in the Australian fauna. There is at least double that number of undescribed species represented in collections. Many representatives occur in the Australian tropics where there are several monotypic genera. However, the majority of species occur outside the Australian tropics in the interior of the continent where they occur in eucalyptus woodland and grasslands. Where known, the majority of species are predaceous and behave much like their tropical relatives to the north. None are known to be diurnal. The majority of the non-tropical Australian genera are unrelated to those of the tropical rainforests. Their characters are very distant from those exhibited by "typical" members of the tribe and may be found to comprise a tribe of their own.

Shared genera with those of New Guinea are few. A single *Salomona* Blanchard species is known from Iron Range, Cape York Peninsula. This area is renowned for sharing plants and animals with New Guinea. However, we know of no other agraeciines from that locality that share species with those from New Guinea. *Microsalomona* Karny is represented by several species from the southern portion of the Cape York Peninsula and the Atherton Tableland. There are obvious close relationships to other genera that are confined to Australia. *Philmontis* Willemse seems to be a long-winged version of *Coptaspis* Redtenbacher and *Trichophallus* Ingrisch and, to a lesser degree *Pseudonicsara*, are related to *Nicsara* Walker. *Anthracites* Redtenbacher seems to show characters in common with both *Coptaspis* and *Nicsara*.

The purpose of this paper is to describe new taxa of the Agraeciini collected during two biological surveys of Papua New Guinea (PNG) conducted in 2009 by the Rapid Assessment Program (RAP) of Conservation