Chapter 11

A rapid assessment survey of katydids and relatives of the Muller Range (Insecta: Orthoptera: Ensifera)

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SUMMARY

We report the results of a rapid assessment survey of katydid diversity in the Muller Range of Western and Southern Highlands Provinces, Papua New Guinea. Ninety species of katydids were collected at three different elevations during the survey. At least 56, or 62% of species recorded during the survey represent species new to science. The current survey confirms that the katydid fauna of Papua New Guinea is exceptionally rich, yet still virtually unknown. Although no specific conservation issues have been determined to affect it, habitat loss on Papua New Guinea is the primary threat to the biota of the island.

INTRODUCTION

Katydids (Orthoptera: Tettigonioidea) have long been recognized as organisms with a significant potential for their use in conservation practices. Many katydid species exhibit strong microhabitat fidelity, low dispersal abilities (Rentz 1993a), and high sensitivity to habitat fragmentation (Kindvall and Ahlen 1992) thus making them good indicators of habitat disturbance. These insects also play a major role in many terrestrial ecosystems as herbivores and predators (Rentz 1996). They are themselves a principal prey item for several groups of invertebrates and vertebrates, including birds, bats (Belwood 1990), and primates (Nickle and Heymann 1996). At the same time many species of katydids are threatened and some appear to have already gone extinct (Rentz 1977).

It is critically important that more effort is directed towards basic faunal surveys of katydids across the tropics, thus creating the basis on which a successful conservation strategy for these animals can be built. Such surveys, if conducted in pristine or relatively undisturbed areas, also provide reference data which can later be used in habitat monitoring or restoration efforts that should follow any industrial or agricultural activity.

Katydids 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. Although a recent study by Novotny et al. (2007) significantly tempers the estimates of