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A tiny new species of leaf insect (Phasmatodea, Phylliidae) from New Guinea

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Abstract

The female and egg of the new Papuan leaf insect *Phyllium (Phyllium) riedeli* **n. sp.** are described and illustrated. The species belongs in the *siccifolium* species-group of the subgenus *Phyllium* and, with a body length of 56.3 mm, represents the smallest leaf insect so far described for the genus. The type-specimens are stored in the State Museum of Natural History Karlsruhe, Germany (SMNK). A checklist and key is provided for the New Guinean representatives of *Phyllium* (*Phyllium*) Illiger, 1798.

Key words: Phasmatodea, leaf insects, *Phyllium (Phyllium) riedeli* **n. sp.**, West Papua

Introduction

The family Phylliidae is well-known for containing the so-called leaf insects, which have always fascinated entomologists due to their remarkable camouflage. The Phylliidae comprises two tribes—the Nanophylliini with the genus *Nanophyllium* Redtenbacher, 1906 and the Phylliini with the three genera *Chitoniscus* Stål, 1875, *Microphyllium* Zompro, 2001 and *Phyllium* Illiger, 1798. Currently, the family contains 53 described extant species, 40 of which are placed in the genus *Phyllium*. From these 40 known species 29 belong in the subgenus *Phyllium (Phyllium)* Illiger, 1798 and 12 in the subgenus *Phyllium (Pulchriphyllium)* Griffini, 1898. *Eophyllium messelensis*, known from a 47-million-year-old fossil male, already exhibits many of the morphological characters found in modern leaf insects (Wedmann *et al.* 2007).

Comprehensive studies on the Phylliidae were done by Klante (1976), Größer (2001, 2008) and Zompro & Größer (2003). Brock & Hasenpusch (2003) revised the Australian species. The head morphology of *Phyllium (Ph.) siccifolium* (Linnaeus, 1758) was described in detail by Friedemann *et al.* (2011). The eggs of leaf insects were examined e.g. by Clark (1978), Viscuso & Longo (1983) and Hausleithner (1984). Hennemann *et al.* (2009) published an extensive survey of the genus with a revision of Philippine species, which questioned the validity of the so far established systematic groups and provided a reclassification as well as clarification of several identifications.

This paper describes and discusses a tiny new leaf insect found in West Papua (New Guinea), which is in accordance to the classification presented by Hennemann *et al.* (2009) placed in the *siccifolium* species-group of the subgenus *Phyllium (Phyllium)*. The description is based on a single adult female and four eggs.

Methods

A single female of *Ph. (Phyllium) riedeli* **n. sp.** was collected alive in 2010 in the highlands of West New Guinea. After collection, the specimen survived for 13 days in captivity and dropped four eggs before its death. The eggs were incubated at room temperature and were regularly sprayed with water, but no hatchlings emerged. After one

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Keys to the species of *Phyllium* (*Phyllium*) of New Guinea

♀

1. Body length > 75 mm 2
- Very small, body length < 60 mm (Figs 1–4) . . . . . *riedeli* **n. sp.**
2. Abdomen broad, either angular in outline or ± lobed 3
- Abdomen slender, segments V–X more or less gradually tapered (Fig. 7A) . . . . . *caudatum*
3. Abdominal segments VII–VIII ± lobed; prosternum with a spiniform process; exterior lobe of profemora narrower than interior lobe (Fig. 7B) . . . . . *elegans*
- Abdominal segments VII–VII not lobed; no spiniform process on prosternum; exterior lobe of profemora ± equal in width to interior lobe (Fig. 7C) . . . . . *zomproi*

♂*

1. Abdomen broad, <2x longer than head and thorax combined 2
- Abdomen very elongate and slender, >2x longer than head and thorax combined and segments V–X gradually tapered . . . . . *caudatum*
2. Exterior lobe of profemora rounded and almost as wide as interior lobe; interior lobe with 5–6 small, roughly equally sized teeth . . . . . *zomproi*
- Exterior lobe of profemora very slender and much narrower than interior lobe; interior lobe with two large and three small intervening teeth . . . . . *telnovi*

* The ♂ of *Ph. (Ph.) zomproi* is only known from a subadult nymph, which was illustrated by Größer, 2001: 104, fig. 132 and Größer, 2008: 146, fig. 181. The key features here used are however most likely also true for the adult insect, which is seen by comparison of adults and immature specimens of other species in the genus.

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