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## New and little known Brachodidae from tropical Asia and Papua New Guinea (Lepidoptera, Cossioidea)

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### Abstract

In this study nine new species and a new genus of Brachodidae are described from tropical Asia and Papua New Guinea. *Synechodes polias* **sp. nov.** and *Synechodes tamila* **sp. nov.** are described from Sulawesi and southern India, respectively. A new genus, *Saccocera* **gen. nov.** (type species *Miscera orpheus* Kallies, 2004), is described to accommodate five species occurring from Taiwan and Sumatra across Melanesia to Papua New Guinea. It differs significantly from the related genera *Miscera* Walker, 1863 and *Synechodes* Turner, 1913 in morphological details of the head and the male and female genitalia. Two species of *Saccocera* are described here, *Saccocera panaras* **sp. nov.** from Papua New Guinea and *Saccocera miangkabau* **sp. nov.** from Sumatra. Furthermore, *Miscera minahasa* **sp. nov.** and *Paranigilgia mariannae* **sp. nov.** are described from Sulawesi, *Paranigilgia brandti* **sp. nov.** and *Nigilgia atribractea* **sp. nov.** from Papua, and *Nigilgia browni* **sp. nov.** is described from Christmas Island. Finally, *Synechodes heppneri* Kallies, 1998 *syn. nov.* is reverted to a junior synonym of *Synechodes coniophora* Turner, 1913. *Nigilgia anactis* Diakonoff, 1982 is figured for the first time and its distribution in Asia is discussed.

**Key words:** new species, new genus, Lepidoptera, Cossioidea, Brachodidae, Asia, Papua New Guinea, Key

### Introduction

Brachodidae are a small family that until recently was assigned to Sesiioidea (Heppner & Duckworth 1981, Minet 1991). With 137 described species, the family occurs worldwide with the exception of North America (Heppner & Duckworth 1981, Nieuwerkerken *et al.* 2011). A recent molecular study (Mutanen *et al.* 2010) failed to find support for the monophyly of Sesiioidea, resulting in the inclusion of Brachodidae in a larger concept of Cossioidea (Nieuwerkerken *et al.* 2011); however, this study included only a single brachodid genus, *Synechodes* Turner, 1913, belonging to the subfamily Brachodinae, with none of the other subfamilies examined. Thus, further studies based on broader taxon sampling are required to resolve the precise position of Brachodidae relative to other sesiid and cossoid families.

The present concept of Brachodidae with three subfamilies, Brachodinae, Pseudocossinae, and Phycodinae, was established by Heppner (1981) and Minet (1991). Possible autapomorphies were discussed by Minet (1991), Kozlov *et al.* (1998), Kristensen (1998), and Kallies (2004); however, the monophyly of the family is still uncertain.

The Brachodidae of the Oriental region and adjacent areas including Papua New Guinea and the Arabian Peninsula were revised relatively recently (Kallies 2004). Forty-one species were recorded in that study and another three species, all from southeastern China, were described subsequently (Kallies *et al.* 2007, 2011; Heppner 2009). Here, a new genus and another nine species are described from tropical Asia and Papua New Guinea.