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New Species of the Hover Wasp Genus *Eustenogaster* (Insecta: Hymenoptera: Vespidae: Stenogastrinae) from Southeast Asia

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Three new species of the stenogastrine genus *Eustenogaster* van der Vecht, 1969 are described. They are *E. panaiensis* sp. nov. from Panay Island, the Philippines, *E. clypeata* sp. nov. from Thailand, and *E. vietnamensis* sp. nov. from southern Vietnam. A key to the species of *Eustenogaster* including these new species is also given.
Key Words: Vespidae, Stenogastrinae, *Eustenogaster*, Philippines, Thailand, Vietnam, taxonomy, new species, dichotomous key.

Introduction

The hover wasps of the vespid subfamily Stenogastrinae, with 58 species currently recognized in seven genera (Kojima 2008), are distributed mainly in forested areas of tropical Asia and the Papua region. Because these wasps exhibit considerable diversity in social life (see Turillazzi 1991, 1996) and also form the basal clade of the social vespids (Carpenter 1982, 1991), this subfamily is considered to be a key group for understanding the origin and evolution of social behavior in wasps. Species-level taxonomy of hover wasps, however, is still rather poorly established.

Among the hover wasps, the 15 currently recognized species of the genus *Eustenogaster* are relatively large in body size (Saito and Kojima 2007) and most widely distributed, ranging from India to Southeast Asia. They make a camouflaged nest with an envelope. Some species are known to have a colony life led by a single egg-laying female sometimes accompanied by a few temporary helpers of adult females (Hansell 1987; Saito *et al.* 2009), while virgin females and males of *E. nigra* Saito and Nguyen, 2006 may undergo hibernation together in a nest (Saito *et al.* 2006). To discuss the evolution of social behavior in the Vespidae it is necessary to study and record the unique biology of *Eustenogaster* with reference to a robust species-level taxonomic system. With this point in mind, I previously carried out a taxonomic revision of the genus (Saito and Kojima 2007), and additional material now allows me to recognize a further three species new to science that are described in this paper. A key to species, modified from that in Saito and Kojima (2007) to include the three new species, is also given.