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A review of the Japanese Cybocephalidae (Coleoptera: Cucujoidea)

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Abstract

The Cybocephalidae of Japan is taxonomically treated. The following four species are recognized: *Cybocephalus* (*Cybocephalus*) *nipponicus* Endrödy-Younga, 1971, *C.* (*C.*) *politissimus* Reitter, 1898, *C.* (*C.*) *chlorocapitis* **sp. nov.**, and *Pastillus eminentithorax* **sp. nov.** Also, species of the genus *Pastillus* are first recorded from the Palaearctic Region, and *C.* (*C.*) *politissimus* is first recorded from Japan. *Cybocephalus* (*C.*) *flavocapitis* Smith 2007 is newly designated as a junior synonym of *C.* (*C.*) *politissimus* Reitter, **syn. nov.** All species are described or redescribed. Dorsal habitus images, illustrations of male and female genitalia, and other important diagnostic characters are provided for all species. A key for identification of all Japanese taxa is also given.

Key words: Coleoptera, Cybocephalidae, *Cybocephalus*, *Pastillus*, Japan, taxonomy, new record, new species, new synonym

Introduction

Cybocephalidae are small beetles, typically 1 mm in body length. Currently, eight extant genera have been described, including ~100 species (Jelínek et al. 2010), and one fossil genus, i.e. *Pastillocenicus* (Kirejtshuk & Nel, 2008). Cybocephalids occur worldwide except in the Polar Regions (Smith & Cave 2006a). Among them, the largest genus is *Cybocephalus* Erichson.

There are many taxonomic works on cybocephalids. The Palaearctic fauna was studied by Endrödy-Younga (1968), Tian & Yu (1994a, 1994b), Yu & Tian (1995), Tian & Peng (1997), and Tian (2006) etc. The Afrotropical fauna was studied by Endrödy-Younga (1962, 1971, etc.); the Nearctic fauna was treated by Smith & Cave (2006a, 2007a, 2007b); the Oriental fauna was studied by Kirejtshuk (1994) and Tian & Ramani (2003). Meanwhile, Japanese cybocephalids have been poorly known, only one species, *Cybocephalus* (*Cybocephalus*) *nipponicus* Endrödy-Younga, 1971 has been recorded. Larval stages were illustrated by Böving & Craighead (1931) and Hayashi (1978).

The higher level classification of cybocephalids is rather confused. Some treat them as a family (Böving & Craighead 1931; Endrödy-Younga 1968; Hisamatsu 1985; Tian & Yu 1994a, 1994b; Yu & Tian 1995; Tian & Peng 1997; Tian 2006; Smith & Cave 2006a, 2007a, 2007b etc.), and others treat them as a subfamily of Nitidulidae (Crowson 1955; Kirejtshuk 1992, 1994; Jelínek & Audisio 2007; Jelínek et al. 2010). A.R. Cline has evidence from both morphological and molecular datasets that definitely place Cybocephalidae outside of Nitidulidae (Cline pers. comm.).

Cybocephalid beetles are known as active predators in both the larval and adult stages (Endrödy-Younga 1968; Lupi 2002 etc). They often feed on several important pests of crops, including armored scales (Diaspididae), whiteflies (Aleyrodidae), mealy bugs (Pseudococcidae), and citrus red mite, *Panonychus citri* (McGregor) (Smith & Cave 2006a; Smith & Bailey 2007). Due to their predacious habits, cybocephalids have been studied for potential use in biological control studies as natural enemies. The widespread distribution of *C.* (*C.*) *nipponicus* is best explained by its introduction around the world as a biological control agent for many armored scale pests (Smith & Cave 2006a, 2006b).

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