



Review of the species of *Ittys* (Chalcidoidea: Trichogrammatidae) occurring in the United States, with the description of four new species

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Abstract

The United States fauna of the genus *Ittys* (Trichogrammatidae: Paracentrobiini) is revised for the first time. This revision includes a redescription of the genus, redescrptions of the named North American species with illustrations of diagnostic characters. The genus *Ittys* contains three described North American species which are all considered synonyms of the widespread *Ittys cerasarum* (Ashmead). Four new species from the United States *I. californica* n. sp., *I. infuscata* n. sp., *I. macfarlandi* n. sp. and *I. inermis* n. sp. are described as new.

Key words: Trichogrammatidae, Paracentrobiini, *Ittys*

Introduction

Girault (1911) erected the genus *Ittys* to accommodate *Trichogramma cerasarum* Ashmead, 1888. Girault (1911) recognized the rather unique habitus of *Ittys* and noted its relationship to *Paracentrobia* (Abella) Howard. He noted a number of generalized differences between *Ittys* and *Paracentrobia* (Abella) such as its larger size, the pronounced F1 which is longer than wide, and the strongly developed stigmal vein. *Ittys* was synonymized with *Paracentrobia* by Doutt and Viggiani (1968) and subsequently resurrected by Viggiani (1971). The genus appears to have a world-wide distribution. The phylogenetic position of the North American fauna relative to extralimital species is unclear. However extensive material from other biogeographic regions were examined in the process of this revision. The key presented below might not work for extralimital species. *Ittys* was placed in the Paracentrobiini by Viggiani (1971). The Paracentrobiini as defined by Viggiani (1971) is a putative monophyletic assemblage of 50 described species in four genera: *Paracentrobia* (42 spp., worldwide), *Ittys* (6 spp., worldwide), *Paraittys* (1 sp., Israel), and *Ittysella* (1 sp., North America) (Doutt & Viggiani 1968, Yousuf and Shafee 1986, Pinto & Viggiani 1987, Viggiani 1971, 1972). Viggiani (1985, 1988) also placed the genera *Burksiella* (as *Zagella*) and *Pintoa* in the Paracentrobiini on the basis of genitalic similarities in males. However, neither taxon appears to be closely related to the Paracentrobiini (Owen *et al.* in press). The tribe is defined by a relatively long and narrow forewing, a long marginal vein and a well developed stigmal vein, an antennal formula of 3 club segments and 2 funicle segments, male genitalic characters (Viggiani 1971), and general coloration (usually yellow with some black markings). Synapomorphic features of the genus are limited. These include the short second funicular segment relative to the first, the constricted dorsoapical aperture of the phallobase in the male genitalia and the presence of a modified terminal sternum in males.

Terms used are derived from several sources (Doutt and Viggiani 1968, Gibson *et al.* 1997, Pinto 1999). Terms used herein indicate relative structure rather than homology unless explicitly addressed. Gibson *et al.*