TRICHOGRAMMATOIDAE BRASILIENSIS (ASHMEAD)—NEW COMBINATION FOR A SPECIES HISTORICALLY PLACED IN TRICHOGRAMMA (HYMENOPTERA: TRICHOGRAMMATIDAE)

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Abstract.—The species brasiliensis Ashmead is transferred from Trichogramma to Trichogrammatoidae. This new combination is based on the examination of the remounted holotype.

Key Words. Trichogramma, Trichogrammatoidae, taxonomy

In 1904 Ashmead described the species Pentarthron brasiliensis from a single female “collected on cotton” in “Bahia”, Brazil, in “Mar 83”. Pentarthron Riley has long been considered a synonym of Trichogramma Westwood, and brasiliense has always been associated with these nominal genera (Zerova and Fursov 1989). Because the identification of Trichogramma species depends largely on male traits, it was pointed out by Pinto and Stouthamer (1994) that the definition of Trichogramma brasiliensis was unresolved, notwithstanding its continued use in the biological control literature (see De Santis 1989 and below for references). Upon examining the female holotype in the National Museum of Natural History, Smithsonian Institution (Washington, D.C.) (USNM type no. 6596) the question arose as to whether brasiliense was correctly placed in Trichogramma. Unfortunately, the type was uncleaned and poorly mounted, precluding examination of certain fore- and hind wing characters critical for positive generic placement. The specimen was recently remounted and it is now clear that the species is not a Trichogramma but instead belongs to the related genus Trichogrammatoidae Girault.

Trichogrammatoidae is most easily separated from Trichogramma by male genitalia and antennae (Pinto and Stouthamer 1994). However, certain wing features allow either sex to be placed. Trichogramma (Fig. 1) is characterized as follows: Forewing (Fig. 1a) marginal vein with three robust and elongate setae on dorsal surface; premarginal vein with two such setae. Two suboval sensilla between the marginal and premarginal veins. RS1 vein track present behind stigmal vein. Hind wing (Fig. 1b) usually with at least two setal tracks, a middle track which is always complete to the wing apex and a complete or partial posterior track; a third, anterior track is present or absent. In contrast, Trichogrammatoidae is characterized as follows: Forewing marginal vein with only two robust and elongate setae on the dorsal surface—the third (apical most) is considerably shorter; premarginal vein with only one seta. One sub-oval sensillum between marginal and premarginal veins. RS1 vein track absent. Hind wing with only a middle setal track which is not complete to the wing apex. In addi-
Figs. 1–2. Wing characteristics. 1, Trichogramma: a, Forewing venation, dorsal; b, hind wing, anterior at top. 2, Holotype female of Trichogrammatoides brasiliensis: a, forewing venation, dorsal; b, hind wing, anterior at top. Abbreviations: m = marginal vein; p = premarginal vein; arrow refers to boundary between marginal and premarginal veins.

tion, the forewing is generally broader in Trichogramma than in Trichogrammatoides and it has denser setation and shorter fringe setae along its margin.

The holotype of brasiliensis is clearly assignable to Trichogrammatoides based on wing characters. During remounting, one forewing and hind wing were placed together under a separate coverslip for optimal viewing and illustration (Fig. 2a, b). In this specimen the RS₁ vein track is absent; only a single setal socket occurs on the premarginal vein, and of the three setae on the marginal vein, the two basal ones are broken but the third, which is present, is relatively short as in Trichogrammatoides. The single suboval sensillum between the premarginal and marginal veins is not visible in the remounted forewing of the type, but it can be seen on the wing which remains attached to the body. Also, as is characteristic of Trichogrammatoides but not Trichogramma there is only a single, incomplete setal track on the hind wing of the type. Although a single track occurs in two species of the primitive Lachesis Group of Trichogramma (Pinto 1992), it is complete to the wing apex in all species. In addition, the forewing of the type has relatively sparse setation and an elongate setal fringe
on its margin, both characteristic of _Trichogrammatoidae_. It is curious that Girault (1911b) upon redescribing this species did not recognize its incorrect generic placement considering that he described _Trichogrammatoidae_ earlier in the same year (Girault 1911a) and noted the unique wing characteristics in his redescriptions (absence of an RS, and single setal track in hind wing) which he had incorporated into the definition of the new genus.

Because the holotype of _Trichogrammatoidae brasiliensis_ (new combination) is a female and in poor condition I am unable to determine with confidence if it is distinct or a synonym of an already described species. It is possible that _Trichogrammatoidae annulata_ De Santis, also associated with cotton in Brazil (De Santis 1972), is a synonym of _T. brasiliensis_. I have examined a paratype male and female of _T. annulata_ and can find no differences in wing structure or ovipositor length. However, until the South American _Trichogrammatoidae_ are better known I suggest continuing to use _T. annulata_ as a valid name and treating _T. brasiliensis_ as valid but as a _nomen dubium_, i.e. a name not certainly applicable to any known taxon.

The question arises as to what species of _Trichogramma_ has/have been misidentified as _brasiilense_ in the literature where the name continues to be associated with biological control efforts particularly against pyralid pests of sugarcane (Monje 1995). This is not possible to answer without examining voucher specimens associated with each study. However several years ago I received two cultures identified as _Trichogramma brasiliense_, one from the USDA Laboratory in Beltsville, Maryland, and the other from a _Trichogramma_ production center in Torreon, Mexico. Both were _T. fuentesi_ Torre, a species generally misidentified as _T. fasciatum_ Perkins in the early literature. _Trichogramma fuentesi_ was originally described from Cuba but it also occurs in the southeastern United States, Mexico and South America (Pinto et al., 1983).

The literature suggests that the name _brasiilense_ has been applied to other species as well. For example, Ruiz and Korytkowski (1980) define it as a species which I would consider close to _T. pretiosum_ based on their description and illustrations, and Kfir (1982) and others have applied the name to thelytokous populations. The latter usage may stem from Quednau (1961), and Nagaraja and Nagarkatti (1969) who considered _brasiilense_ as a thelytokous form of _Trichogramma fasciatum_. The actual species studied by Kfir, Ruiz and Korytkowski, and several other authors, remain undetermined. One of the mysteries of _Trichogramma_ taxonomy is how certain common New World species became misidentified as they did and how these misidentifications became so well established in the literature.

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**LITERATURE CITED**


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