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Review of the genus *Thrips* and related genera (Thysanoptera, Thripidae) from Japan

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Abstract

Members of *Thrips* genus-group from Japan are reviewed, and 45 species in seven genera are recognized. Nine species and one genus are newly described: *Stenchaetothrips amamiensis* **sp. n.,** *S. dentatus* **sp. n.,** *S. pleioblasti* **sp. n**., *Thrips nonakai* **sp. n.,** *T. ogasawarensis* **sp. n.,** *T. shiranesanus* **sp. n.,** *T. syringae* **sp. n.,** *T. typicus* **sp. n**. and *Tsutsumiothrips ryukyuensis* **gen. et sp. n**. Moreover, 14 species of two genera are newly recorded from Japan: *S. langkawiensis* Ng & Mound, *S. undatus* Wang, *Thrips alni* Uzel, *T. aspinus* Mound & Masumoto, *T. brevicornis* Priesner, *T. brunneus* Ishida, *T. extensicornis* Priesner, *T. minutissimus* Linnaeus, *T. pini* (Uzel), *T. subnudula* (Karny), *T. sukki* Bhatti & Lee, *T. trehernei* Priesner, *T. urticae* Fabricius and *T. vitticornis* Karny. A previously recorded species, *Stenchaetothrips bambusae* (Shumsher) is excluded from the Japanese fauna.

Key words: Thysanoptera, Thripidae, *Thrips*, *Stenchaetothrips*, *Tsutsumiothrips*, *Thrips* genus group, Japan

Introduction

Suprageneric relationships within the subfamily Thripinae are unclear but several probable monophyletic groups are recognized (Masumoto & Okajima, 2005, 2006, 2007; Mound & Masumoto, 2009; Mound & Palmer, 1981). One of them, *Thrips* Linnaeus and related genera, is relatively strong defined by the following shared character states: abdominal tergites V to VIII with paired ctenidia which are mesad of spiracles on tergite VIII and usually end to base of S4 setae on tergites VI to VIII, and absence of ocellar setae pair I (Mound & Palmer, 1981; Mound, 2002). Mound & Palmer (1981) recognized 12 genera as members of this group: *Baliothrips* Uzel (including at that date *Stenchaetothrips* Bagnall and *Stenothrips* Uzel), *Bolacothrips* Uzel, *Bournierothrips* Bhatti, *Sphaeropothrips* Priesner (as *Ednathrips* Bhatti), *Ernothrips* Bhatti, *Fulmekiola* Karny, *Larothrips* Pitkin, *Microcephalothrips* Crawford, *Plesiothrips* Hood, *Rhinothripiella* zur Strassen, *Thrips* and *Toxonothrips* Moulton. However, *Stenchaetothrips* and *Stenothrips* are now considered distinct genera (Bhatti & Mound, 1980), and *Plesiothrips* is probably related to *Trichromothrips* Priesner rather than to *Thrips* by having dorso-apical median setae on antennal segment I and presence of horn-like tubercles on the male tergite IX (Masumoto & Okajima, 2005). Thereafter, Masumoto & Okajima (2002b) provided an identification key to the 14 genera of *Thrips* group, including *Ctenidothrips* Priesner. Moreover, further three genera, *Abacothrips* Bhatti, *Sminyothrips* Uzel and *Tsutsumiothrips* n. gen. are here also included in this group. These genera usually include one to five (at most 12) species although *Thrips* includes more than 280 species, and *Stenchaetothrips* includes 30 (Mound, 2012). Members of this group are found throughout the world but particularly in the Old World (Masumoto & Okajima, 2002b): 5 genera in the Ethiopian, 10 genera in the Oriental and 11 genera in the Palaearctic although the latter includes *Microcephalothrips* that may have originated in the Old World tropics (Mound & Walker, 1982). Eleven genera are known only from the Old World, whereas there is only one genus, *Toxonothrips*, that is endemic in the Nearctic region. *Stenchaetothrips brasiliensis* Hood, was described from South America but recently was treated as a synonym of *S. indicus* (Ramakrishna & Margabandhu) from India (Ng & Mound, 2012). This species may have originated in the Oriental region as have two other species known from South America as discussed below. Within *Thrips* group, eight genera are grass living, but the others are mainly associated with other plant families (Table 1).

In Japan, seven genera, *Bolacothrips*, *Ernothrips*, *Fulmekiola*, *Microcephalothrips*, *Sphaeropothrips*, *Stenchaetothrips* and *Thrips*, have been known. However, in the two largest genera, *Stenchaetothrips* and *Thrips*, only four and 12 species were previously known (Miyazaki & Kudo, 1988).Thereafter, *T. orientalis* (Bagnall) was recorded from Okinawa by Palmer (1992) but these genera in Japan have not been studied for a long time. There are several well known pest species included in these two large genera, especially *T. palmi*, *T. tabaci* and *T. setosus* are known as vectors of Tospoviruses. Thus, a fully revised faunal account of these genera is necessary, not only for thrips specialists but also for agricultural or quarantine researchers in Japan.

In this article, Japanese species of *Stenchaetothrips* and *Thrips* are reviewed, and a further five species and 17 species are added to these genera from Japan. However, *S. bambusae* Shumsher is here excluded from the Japanese fauna. Moreover, a new genus and species of grass-living thrips, *Tsutsumiothrips ryukyuensis*, is described from the Ryukyus, Japan, and illustrated identification keys and a list of the species from Japan in this group are provided. *Thrips fuscicornis* Ishida described from Urup Island is re-described. Full nomenclatural details of all taxa are web-available (Mound, 2012).