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A NEW GALL-INDUCING SPECIES OF *HOLOPOTHRIPS* (THYSANOPTERA: PHLAEOTHRIPINAE) FROM *TABEBUIA* TRUMPET TREES IN THE CARIBBEAN REGION

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ABSTRACT

In this research we describe *Holopothrips tabebuia* **new species** based on specimens collected from Puerto Rico, Florida, and Dominican Republic. *Holopothrips tabebuia* differs from the closely allied *H. inquilinus* (Bournier) in shape and reticulation patterns of the metanotum, and in the number of epimeral setae. Most specimens have been collected from Bignonaceae, particularly from host plants in the genus *Tabebuia*. Thus, we have chosen the epithet *tabebuia* to denote its relationship with these plants.

Supplementary material (color pictures) on line at http://www.fcla.edu/FlaEnt/fe912.htm

Key Words: Thysanoptera, Phlaeothripinae, *Holopothrips*, Gall, Bignonaceae, *Tabebuia* Caribbean Region

RESUMEN

En esta publicación describimos a *Holopothrips tabebuia* **nueva especie** basado en especímenes colectados en Puerto Rico, Florida y Republica Dominicana. *H. tabebuia* difiere de su aliado cercano, *H. inquilinus* (Bournier) en la forma y los patrones de las reticulaciones del metanoto, y el número de la seta epimeral. La mayoría de los especímenes fueron colectados de las Bignonaceas, particularmente de las plantas hospederas del género *Tabebuia*. Se seleccionó el epíteto *tabebuia* para denotar su relación con estas plantas.

Translation provided by the authors.

Holopothrips Hood is a Neotropical genus of 30 described species (Mound 2007). Several species are known to induce leaf deformation, or even galls, on the leaves of their host plants (Cavalleri & Kaminski 2007). Mound & Marullo (1996) provided an identification key to more than 30 species. Described species show a considerable range of structural differences, and high morphological variability within groups has resulted in five described genera being synonymized (Mound & Marullo 1996).

This paper describes a **new species** of *Holopothrips*, first recorded from Puerto Rico in 2006 (Cabrera et al., in press). This thrips is possibly widespread in the northern Caribbean, having been taken from at least 2 species of *Tabebuia* (Bignoniaceae), in Puerto Rico, Florida, and Hispaniola. Adults and larvae feed on very young foliage, inducing obvious gall-like deformations (Figs. 1 and 2), which become more noticeable as infested leaves mature. All life stages of the new *Holopothrips* species coexist within galled leaves. Anecdotally, attack severity seems more prevalent in humid districts in Puerto Rico. Also, *Tabebuia heterophylla* (D.C.) Britton shows the highest infestation when compared with other surveyed trumpet tree species (Cabrera et al., in press). These authors also found *Montandoniola moraguezi* Puton (Hemiptera: Anthocoridae) predating on *Holopothrips tabebuia* n.sp. Similar predation of *Holopothrips* sp. by *M. moraquezi* was observed by Dobbs & Boyd (2006).

Holopothrips tabebuia, **new species**

Female Macroptera. Body bicolored, mainly yellow to brownish yellow with head and pterothorax light brown, and abdominal segments VIII-X dark brown (Fig. 3); antennal segments I - II light brown, III-VIII yellow (Fig. 4); legs yellow; forewings uniformly pale; major setae pale except dark anal setae.

Head slightly longer than wide; 1 pair of major capitate postocular setae, arising behind inner margin of eyes; maxillary stylets retracted to postocular setae (Fig. 5), about one third of head width apart medially; mouth cone rounded, not extending beyond fore coxae. Antennae 8-segmented, segments III and IV with 3 sensoria, V and VI with 2 sensoria; VIII slender. Pronotum transverse, epimeral sutures incomplete; only 1 pair of epimeral setae, all 5 pairs of major setae capitate. (Fig. 6). Fore tarsus without a tooth. Metanotum with longitudinal narrow reticulation, al-

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Fig. 1-2. Damage caused by *Holopothrips tabebuia,* **new species**. 1, *Tabebuia heterophylla*; 2, *Tabebuia aurea*.

most striate; 1 or more pairs of small setae present anterior to median major setae (Fig.7). Forewing parallel sided, with 10 duplicated cilia present posteriorly on distal end of forewing; 3 capitate sub-basal setae arising in a straight line. Pelta reticulate, 1 pair of campaniform sensilla close to posterior margin (Fig. 8). Segment IX with a swollen S-shaped spermatheca (Fig.9). Tergites II-VII each with an additional almost straight seta anterior to paired sigmoid wing-retaining setae (Fig 10). Tergite IX setae S1 and S2 blunt to weakly capitate; S1 about as long as tube, S2 longer; S3 finely acute; tube much shorter than head.

Measurements (holotype female in microns). Body length 2425. Head, length 275; width 255; major postocular setae 50. Pronotum, length 180; median width 360; major setae, anteromarginal (am) seta 20, anteroangular (aa) seta 35, ml 50, epimeral (epim) 76, posteroangular seta (pa) 55. Forewing, length 800; sub-basal setae 35-40. Abdominal tergite IX setae S1 (155) , S2 (165), S3 (152.5); tube length 170. Antennal segments I-VIII length 35, 40, 60, 35, 50, 45, 45, 30.

Male Macroptera. Similar to female but slightly smaller; without fore tarsal tooth. Abdominal sternites VII-VIII each with 3 glandular areas, 1 close to posterior margin and 2 anterolateral to row of discal setae (Fig. 11); on segment VIII the posterior glandular area is prolonged laterally onto the tergite and extends to tergal marginal setae S1 (Fig. 12); tergite IX setae S2 slightly longer than S1.

Measurements (paratype male in microns). Body length 2100. Head, length 225; width 215; major postocular setae 35. Pronotum, length 163; median width 285, major setae, am 20, aa 27.5, ml 40, epim 55, pa 40. Forewing length 750; sub-basal setae 30-35. Abdominal tergite IX setae S1 (142.5), S2 (147.5); tube length 160. Antennal segments I-VIII length same as holotype.

Material Studied

Holotype female, Puerto Rico, Toa Alta, from distorted leaf of *T. heterophylla*, 12.ix.2006 (S. Cruz), deposited in Museum of Entomology and Tropical Biodiversity (METB) Agricultural Experiment Station, University of Puerto Rico, Rio Piedras, Puerto Rico (PR. Acc. No. 07-2007). Paratypes: Seven females and 6 males. Four females on *T. heterophylla* from San Juan, P.R. 6.vii.2007 (S. Cruz), 2 females collected with holotype, and 1 female Arecibo, P.R. 20.vii.2007 (S. Cruz). Four males from Cayey, P.R. 20.ix.2007, (I. Cabrera), and 2 males collected with holotype. One female and 1 male from Toa Alta, P.R. in collection of L. A. Mound, Australia; 2 females (San Juan) and 2 males (Cayey) in USNM, Washington, D.C. Four females and 3 males deposited with holotype at METB.

Other Material Examined: Dominican Republic: Two females and 2 males, all from *Tabebuia* sp. and deposited at METB**.** U.S.A**.,** Florida: Nine females and 3 males, 8 from *Tabebuia* sp., 1 from *Amphitecna latifolia* (P. Mill.) A. H. Gentry, 1 from *Schefflera actinophylla* (Endl.) H.A.T. Harms, and 2 specimens of unknown hosts ; 2 of these specimens deposited at METB, the others deposited in the Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Gainesville, FL.

Relationships

This new species agrees with the generic definition in Mound & Marullo (1996), and in the identification key to species it will run to the species *H. inquilinus* (Bournier). Unfortunately, that species is known only from specimens taken from an unidentified plant on the Research Station of Duclos in the island of Guadeloupe. Based on Bournier's description and notes in Mound &

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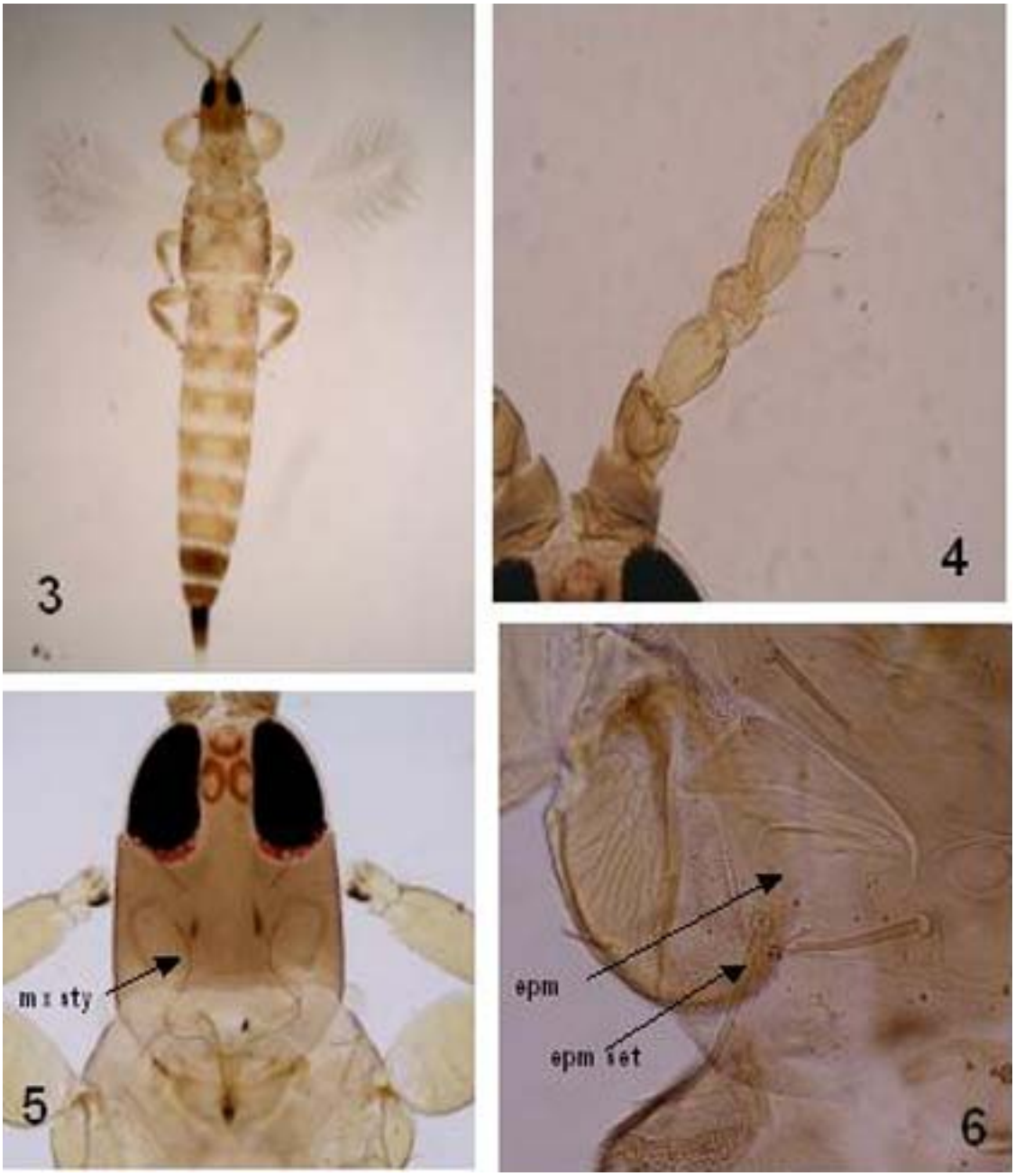


Fig. 3-6 *Holopothrips tabebuia*, **new species**. 3, Female holotype; 4, Female holotype antenna; 5, Female holotype head maxillary stylets (mx sty); 6, Female holotype epimeron (epm), long epimeral seta (epm set).

Marullo (1996), *H. tabebuia* differs from *H. inquilinus* as follows: (1) Metanotum with longitudinal almost striate, reticulation in the former, instead of almost smooth to weakly reticulate in the latter; (2) Epimera with only 1 pair of major setae in the former, instead of 2 pairs in the latter. We have observed variability in the number of forewing cilia (8-12), and in the size of the 4th antennal segment (30-50 microns). Further in a few specimens the maxillary stylets appear to be retracted slightly anterior to the postocular setae, and in some males the glandular area on sternite VI is

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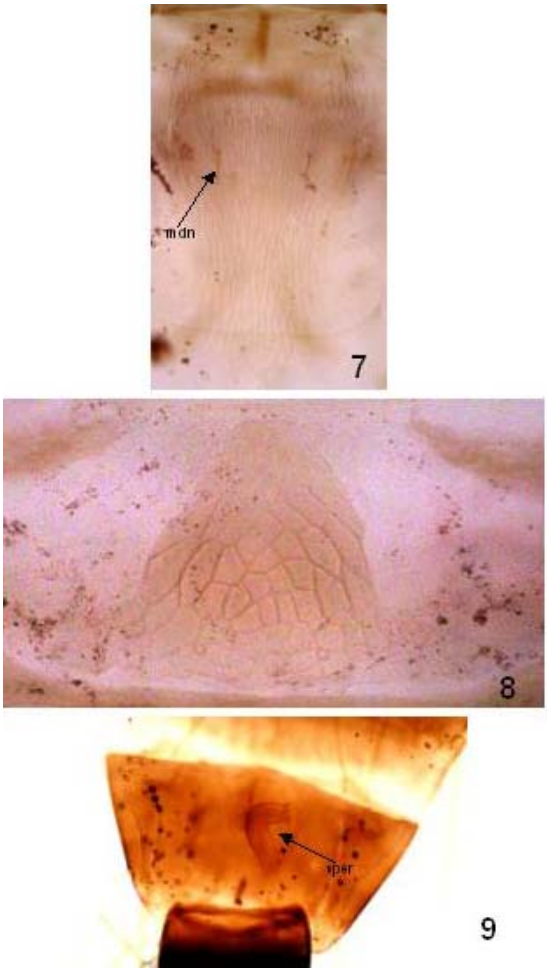


Fig. 7-9. *Holopothrips tabebuia*, **new species**. 7, Female holotype metanotum and median seta (mdn); 8, Female holotype pelta; 9, Female holotype tube spermateca (sper).

faint. We have chosen *tabebuia* as the specific epithet to denote the thrips relationship with these host plants in the Bignonaceae.

Host plants and Distribution

Holopothrips tabebuia **new species** has been collected in Florida (USA), Puerto Rico, and Hispaniola, mainly from Bignonaceae. Most specimens were collected from *Tabebuia* sp. A few specimens were taken on *Crescentia cujete* L., *A. latifolia,* and *S. actinophylla*, although there is no evidence of any biological association with these plants because they were lacking galls and reproducing populations were not found.

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References Cited

Cabrera I., A. Ramírez, S. Cruz, A. Vélez, L. Sáez, and A. Segarra. 2008. *Holopothrips* sp. (Thysanoptera: Phlaeothripidae) en *Tabebuia heterophylla* y *Tabebuia aurea* en Puerto Rico. J. Agric. Univ. Puerto Rico. (In press).

Cavalleri A., And L. A. Kaminski. 2007. A new *Holopothrips* species (Thysanoptera: Phlaeothripidae) damaging *Mollinedia* (Monimiaceae) leaves in Southern Brazil. Zootaxa 1625: 61-68.

Bournier, A. 1993. Thysanoptéres de Martinique et Guadaloupe. Zoology :J. Pure and Applied Zool. 3: 227-240.

Dobbs T. T., And D. W. Boyd. 2006. Status and distribution of *Montandoniola moraguezi*; (Hemiptera: Anthocoridae) in the continental United States. Florida Entomol. 89: 41-46.

Mound, L. A. 2007. Thysanoptera (Thrips) of the World—a checklist. http://www.ento.csiro.au/thysanoptera/worldthrips.html

Mound, L. A., and R. Marullo. 1996. The Thrips of Central and South America: An Introduction. Memoirs on Entomology International 6: 1-488.

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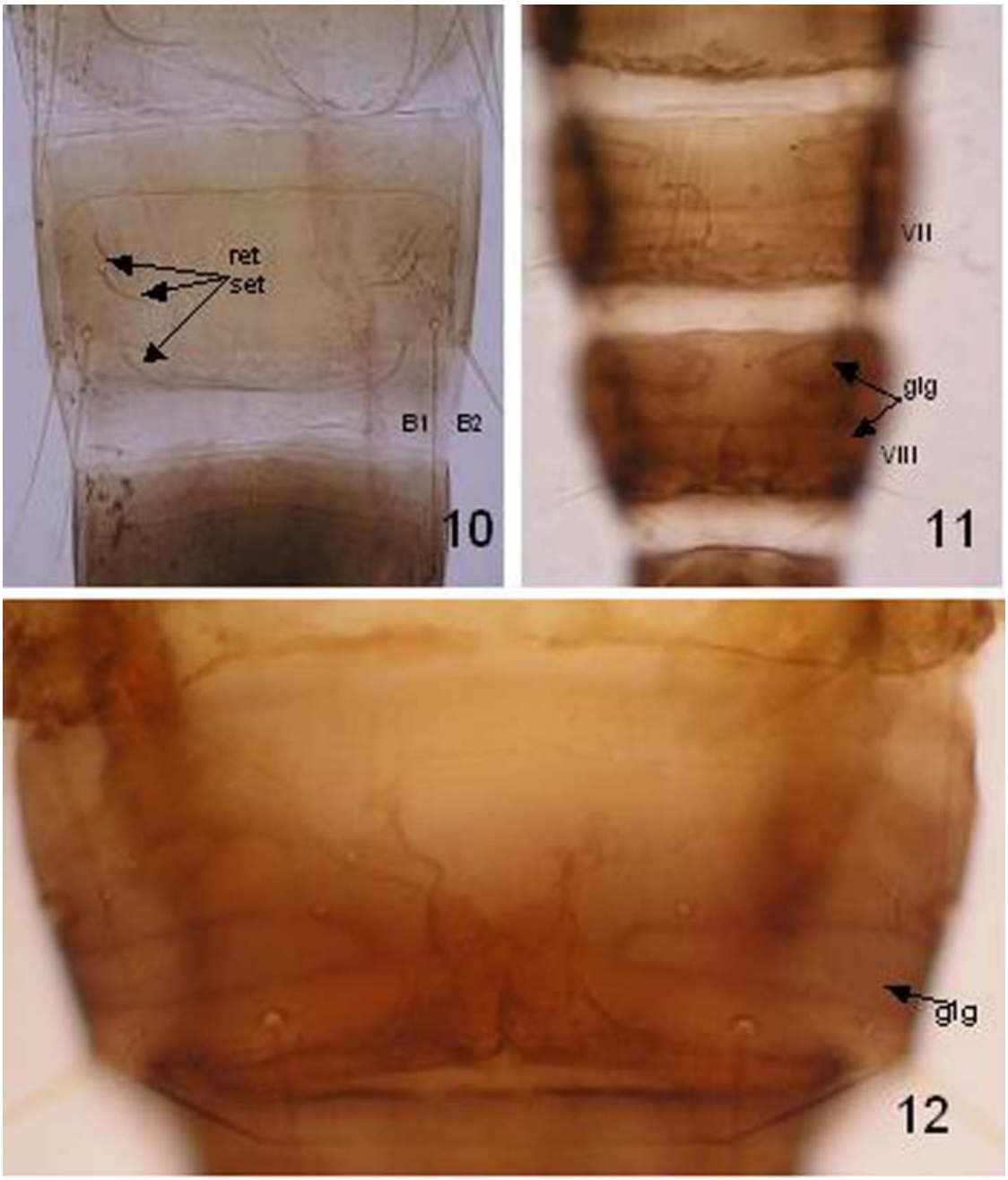


Fig. 10 -12. *Holopothrips tabebuia*, **new species**. 10, female holotype tergite retainer seta (ret set) ; 11, male paratype sternite glands VII and VIII (glg); 12, male paratype tergite gland VIII (glg).

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