

SHORT COMMUNICATION

Occurrence and damages of *Danothrips trifasciatus* (Thysanoptera, Thripidae) on *Calophyllum brasiliense* (Clusiaceae) in Brazil

Marcílio José Thomazini¹ & Élisson Fabrício Bezerra Lima²

¹Empresa Brasileira de Pesquisa Agropecuária, Embrapa Florestas, Estrada da Ribeira, Km 111, 83411-000 Colombo-PR, Brazil.
marcilio.thomazini@embrapa.br

²Universidade Federal do Piauí, Campus Amílcar Ferreira Sobral, BR 343, Km 3,5. Bairro Meladão, 64800-000 Floriano-PI, Brazil.
efblima@ufpi.edu.br

ABSTRACT. Occurrence and damages of *Danothrips trifasciatus* (Thysanoptera: Thripidae) on *Calophyllum brasiliense* (Clusiaceae) in Brazil. *Danothrips trifasciatus* Sakimura, 1975 (Thysanoptera, Thripidae) is recorded for the first time in Brazil, in the municipality of Garça, São Paulo state. Individuals were collected in April 2011 damaging young leaves of guanandi, *Calophyllum brasiliense* Cambess. (Clusiaceae), forest species of increasing importance in Brazil. Future studies involving aspects on biology and population dynamics of the thrips in this plant species need to be carried out, in order to establish its potential economic importance to guanandi.

KEYWORDS. Description; insect pest; invasive species; native forest species.

In the last two decades, concerns about introduction of thrips pests have been growing due to the increasing international trade of commodities. Because of thrips tiny size and difficulties on visualization and identification, its introduction is not easy to prevent. Out of the about 20 pest thrips recorded in Brazil, half is exotic (Monteiro *et al.* 1999; Monteiro & Lima 2011; Lima & Milanez 2013).

In Brazil, guanandi (*Calophyllum brasiliense* Cambess.) (Clusiaceae) is not yet extensively cultivated, although it has been more recently planted in some states such as São Paulo, Mato Grosso, Tocantins and Maranhão (Kalil Filho *et al.* 2012). On the other hand, it is an important forest species in terms of reforestation, landscaping, environmental remediation, use of wood or industrial oil extraction from the fruit (Carvalho 2003). As this crop is still in expansion in Brazil, it is expected that, with the increase of planting areas, guanandi crops will present problems with other damaging insects.

In this paper, *Danothrips trifasciatus* Sakimura, 1975 (Thysanoptera, Thripidae) an introduced phytophagous thrips native to the Oriental region, is recorded for the first time in Brazil. Individuals of this species were damaging guanandi leaves in Garça, São Paulo state. Previous records of this species in Brazil were misidentifications (Monteiro & Lima 2011).

Thrips specimens were observed causing damages on young leaves of guanandi in a 5-year old plantation in April 2011. Adults and larvae of *Danothrips trifasciatus* were collected manually and voucher specimens were stored in vials

with glacial acetic acid – glycerol – ethanol 60% solution (AGA), slide-mounted following the technique proposed by Mound & Marullo (1996) and deposited in the Entomological Collection of the *Departamento de Entomologia e Acarologia* (ESALQ/USP).

The insects occur during the emergence of shoots, i.e., at the beginning of the rainy season and with increasing of temperature. They caused symptoms of curling on the edges of new leaves due to feeding on the plant tissue. Leaves became gnarled and brittle (Figs. 1a, 1b, 1c), in contrast to young leaves of guanandi without damages (Fig. 1d). This attack can reduce the photosynthetic area and, therefore, the plant development. Older leaves were not attacked. Adults and larvae were observed, indicating that guanandi is a true host of this thrips species.

Danothrips trifasciatus is widely distributed throughout the tropics, occurring in the U.S.A., Hawaii, Sumatra, Australia, Indonesia, Philippines and China (Sakimura 1975; Mound & Tree 2007; Mirab-Balou *et al.* 2011). In the Neotropics, it was reported in Puerto Rico, St. Vincent and Martinique (Mound & Marullo 1996). The species is polyphagous, feeding on economically important crops such as *Citrus*, *Musa* and *Anthurium* species. Although native to the Oriental region (Hoddle *et al.* 2012), it seems to have adapted well on guanandi, a plant species native to the New World, causing considerable damages mainly on young leaves. In citrus, *D. trifasciatus* causes rind blemish problems on developing fruit (*i.e.*, ring spotting or irregular russetting) on

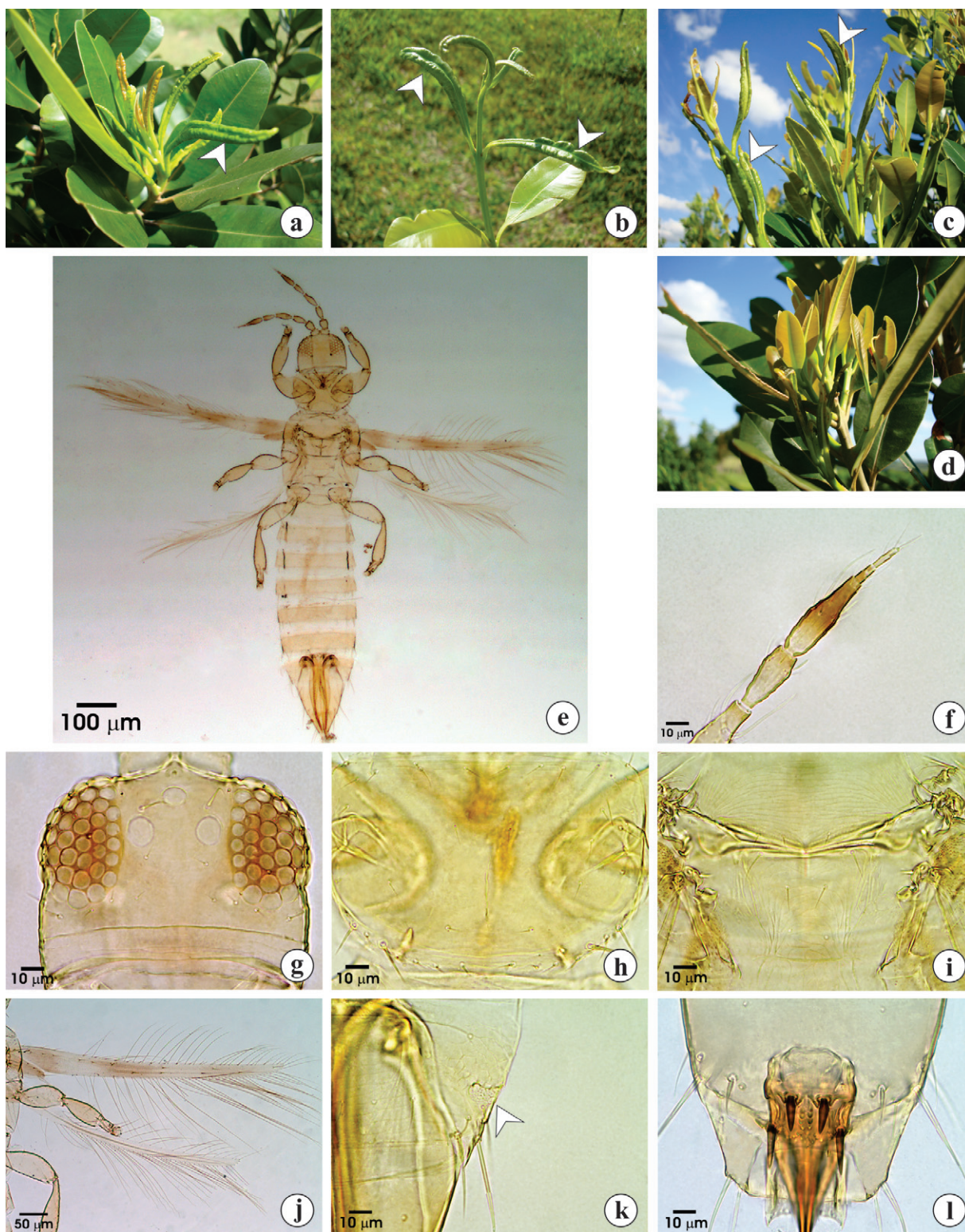


Fig. 1. Damages and morphology of *Danothrips trifasciatus*. a, b, c. Damage caused on young leaves of guanandi (arrows); d. Young leaves of guanandi without damages; e. Female; f. Antennal segments IV (part) – VIII; g. Head; h. Pronotum; i. Mesonotum and metanotum; j. Forewing; k. Abdominal tergite VIII with spiracle with granulate area; l. Abdominal segment IX, with two pairs of thorn-like setae (male).

immature and mature clustered fruit or where a leaf or twig is in direct contact with a fruit (Stansly *et al.* 2012). This thrips species was also reported on the following plants:

Alpinia purpurata, *Bougainvillea* sp., *Costus* sp., *Ipomoea alba*, *Melicoccus bijugatus*, *Paspalum orbiculare*, *P. conjugatum*, *Petroselinum crispum*, *Zingiber zerumbet*, and

young leaves of maize (*Zea mays*) (Sakimura 1975; Bhatti 1980; Childers & Nakahara 2006).

Adults of *D. trifasciatus* are clear yellow with three dark bands on forewing and measure about 1.3 mm in length. Although these features can assist the visualization of the thrips in the field, the identification must be based on microscope slides preparations (Fig. 1e), since there are similar species that can be misidentified, such as *Chaetanaphothrips orchidii* (Moulton, 1907). Morphological characterization is given below: Antennae 8-segmented; long forked sense cones on segments III and IV; posterior half of segment VI brown (Fig. 1f). Head with three pairs of ocellar setae and four pairs of postocular setae (Fig. 1g). Pronotum with two pairs of major setae (posteroangular) (Fig. 1h). Metanotum with median pair of setae far from the anterior margin; one pair of campaniform sensilla (Fig. 1i). Forewing with three brown bands (basally, medially and subapically); first and second veins with incomplete rows of setae; second vein with four setae (Fig. 1j). Spiracles on tergite VIII within granulate areas (Fig. 1k). Males with two pairs of thorn-like seta on abdominal segment IX (Fig. 1l).

Further studies need to be carried out to determine aspects of biology and population dynamics of the pest, the potential economic losses from the insect attack and possible techniques for its management.

Material Examined. BRAZIL. São Paulo: Garça, on guanandi leaves (*Callophyllum brasiliense*), 28.IV.2011, 28♀ 1♂ (M. Thomazini col.) (E.F.B. Lima det.).

ACKNOWLEDGEMENTS

To *Departamento de Sanidade Vegetal* (DSV-MAPA) for releasing the authorization to publish this record of an introduced species (Document number 310/2013/DSV).

REFERENCES

- Bhatti, J.S. 1980. Revision of *Danothrips*, with descriptions of two new species (Thysanoptera: Thripidae). *Journal of Natural History* **14**: 547–588.
- Carvalho, P.E.R. 2003. **Espécies arbóreas brasileiras**. Vol. 1. Brasília: Embrapa Informação Tecnológica; Colombo: Embrapa Florestas, 1039 p.
- Childers, C.C. & Nakahara, S. 2006. Thysanoptera (thrips) within citrus orchards in Florida: species distribution, relative and seasonal abundance within trees, and species on vines and ground cover plants. *Journal of Insect Science* **6**: 1–19.
- Hoddle, M.S., Mound, L.A. & Paris, D. 2012. **Thrips of California 2012**. Queensland, CBIT Publishing.
- Kalil Filho, A.N., Wendling, I. & Ribeiro, R.M. 2012. Seleção de guanandi em plantios comerciais. Comunicado Técnico 299. Colombo, Embrapa Florestas, 6 p.
- Lima, E.F.B. & Milanez, J.M. 2013. First record of *Elixothrips brevisetis* (Bagnall) (Thysanoptera: Thripidae) in Brazil. *Neotropical Entomology* **42**: 115–117.
- Mirab-balou, M., Tong, X.-l., Feng, J.-n. & Chen, X.-x. 2011. Thrips (Insecta: Thysanoptera) of China. *Check List* **7**: 720–744.
- Monteiro, R.C. & Lima, E.F.B. 2011. **Thysanoptera of Brazil**. Available at: <http://www.lea.esalq.usp.br/thysanoptera> (accessed 3 March 2014).
- Monteiro, R.C., Mound, L.A. & Zucchi, R.A. 1999. Thrips (Thysanoptera) as pests of plant production in Brazil. *Revista Brasileira de Entomologia* **43**: 163–171.
- Mound, L.A. & Marullo, R. 1996. The thrips of Central and South America: an introduction (Insecta: Thysanoptera). *Memoirs on Entomology International* **6**: 1–488.
- Mound, L.A. & Tree, D.J. 2007. Oriental and Pacific Thripidae (Thysanoptera) new to Australia, with a new species of *Pseudodendrothrips* Schmutz. *Australian Entomologist* **34**: 7–14.
- Sakimura, K. 1975. *Danothrips trifasciatus*, new species, and collection notes on the Hawaiian species of *Danothrips* and *Chaetanaphothrips* (Thysanoptera: Thripidae). *Proceedings of the Hawaiian Entomological Society* **22**: 125–132.
- Stansly, P.A., Childers, C.C., Nigg, H.N. & Simpson, S.E. 2012. 2012 Florida citrus pest management guide: plant bugs, chewing insect pests, Caribbean fruit fly, and thrips. Gainesville, Department of Entomology and Nematology, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, (ENY-605), 6 p.