

A journal of world insect systematics

INSECTA MUNDI

0923

Megalurothrips usitatus Bagnall (Thysanoptera: Thripidae),
first record of an important new pest in Honduras

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Date of issue: March 31, 2022

Center for Systematic Entomology, Inc., Gainesville, FL

Orozco J. 2022. *Megalurothrips usitatus* Bagnall (Thysanoptera: Thripidae), first record of an important new pest in Honduras. *Insecta Mundi* 0923: 1–4.

Published on March 31, 2022 by
Center for Systematic Entomology, Inc.
P.O. Box 141874
Gainesville, FL 32614-1874 USA
<http://centerforsystematicentomology.org/>

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Megalurothrips usitatus Bagnall (Thysanoptera: Thripidae), first record of an important new pest in Honduras

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Abstract. *Megalurothrips usitatus* Bagnall (Thysanoptera: Thripidae), an invasive and highly destructive pest of beans, is recorded for the first time for Honduras. The species is illustrated to aid in its identification. Specimens were collected from *Phaseolus vulgaris* L. (common bean), *Crotalaria juncea* L. (sunn hemp), and *Melampodium divaricatum* (Rich.) DC (butter daisy).

Key words. Asian bean thrips, beans, crop loss, emergent pest.

ZooBank registration. urn:lsid:zoobank.org:pub:4B29634D-384C-4B14-9496-15002E228A5B

Introduction

Common beans (*Phaseolus vulgaris* L., (Fabaceae)), are a staple food source in Honduran cuisine, as they are eaten at least once daily by the majority of the population. This crop is a large part of the economy of the country and the only source of income for many small producers. In 2021, there were multiple reports of thrips damage, unusual for this crop, around the country, including some claiming complete losses in the Danlí area (El Paraíso). An unprecedented amount of damage caused by thrips was also observed at the end of 2021 in El Zamorano, Francisco Morazán. Similar scenarios were reported in other areas in Honduras (Olancho). Traditional control measurements were not successful at managing the outbreak.

Materials and Methods

Insect samples were collected by beating flowers and leaves of *P. vulgaris*, sunn hemp (*Crotalaria juncea* L. (Fabaceae)), and non-crop vegetation (*Melampodium divaricatum* (Rich.) DC (Asteraceae)) in El Zamorano, Francisco Morazán during January 2022.

Collected specimens were taken to the laboratory and processed following a clearing, dehydrating, and drying protocol (modified from Mound and Kibby 1998) using Euparal as the mounting agent. Photographs were taken using a Canon EOS Rebel T5i mounted on a AmScope microscope at 10X and 40X. Composite images were obtained by using PICOLAY (<http://www.picolay.de>). Individual images were edited and organized in plates in GIMP (<http://www.gimp.org>). Specimens were identified by using the key by Mound and Kibby (1998) for genera and the key by Palmer (1987) for determination of the species of *Megalurothrips* Bagnall. Voucher specimens were deposited at the insect collection at Escuela Agrícola Panamericana, El Zamorano, Honduras (EAPZ).

Results and Discussion

All thrips specimens were identified as *Megalurothrips usitatus* Bagnall, an Asian thrips only known in the Western Hemisphere from the United States (Soto-Adames 2020), Cuba (Suris Campos 2021), and Belize (Ministry of Agriculture, Food Security and Enterprises 2021). In March 2021, the Belize Ministry of Agriculture and the Belize Agricultural Health Authority (BAHA) reported losses of 40–50%, equivalent to around \$2 million USD, in black-eye peas (*Vigna unguiculata* (L.)) due to this thrips (Caribbean Agricultural Research and Development Institute 2021). Similar losses of *P. vulgaris* were reported by Cuban government officials in local newspapers.

Megalurothrips usitatus, as all thrips, damages the plant by oviposition and by the feeding of both nymphs and adults, causing reduced photosynthesis, curled leaves, bud drop, stunted growth, and deformed pods (Fig. 1).



Figure 1. Damaged caused by *Megalurothrips usitatus* Bagnall to *Phaseolus vulgaris* L. in El Zamorano, Honduras.

Commonly called the Asian bean thrips, it can affect a variety of crops in the Fabaceae and a few other families, and therefore represents a high risk to Honduran food security.

Morphologically, *M. usitatus* is sexually dimorphic in size; females are larger (~2 mm) and darker than males (~1 mm) (Fig. 2A–B). Live females are black with a white, transverse band due to the wing patterns, whereas males are yellow and can be confused with other species or nymphs. Microscopically, the dark brown body with pale protibiae and tarsi (Fig. 2A–B), setation on the head (Fig. 2C), pale third antennomere with forked sense cone (Fig. 2D), antennomere VI with evenly elongate sense cone (Fig. 2E), and tergite VIII with an incomplete comb, are diagnostic to authoritatively identify the species if no other species in the genus is known or suspected in the area. Otherwise, the setal distribution on male tergite IX (Fig. 2G) must be observed. Only one

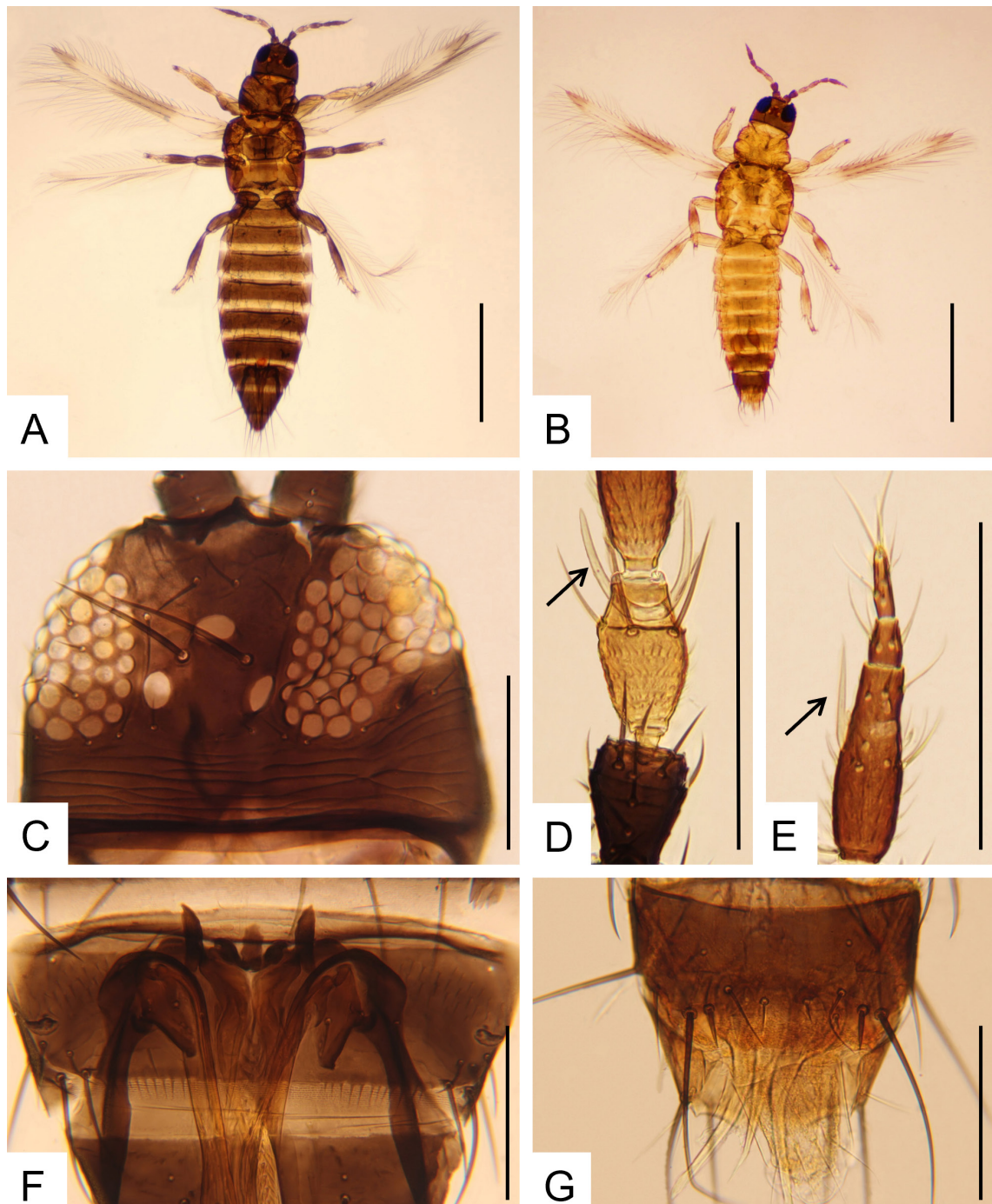


Figure 2. *Megalurothrips usitatus* Bagnall. A) Female, dorsal view. B) Male, dorsal view. C) Head showing three pairs of ocellar setae. D) Antennal segment III with forked sense cone (black arrow). E) Antennal segment VI showing sense cone (black arrow). F) Tergite VIII. G) Male tergite IX showing typical setation. (Scale bars: 0.5 mm for A and B; 0.1 mm for C–G).

other species of *Megalurothrips* is known from the Western hemisphere. *Megalurothrips distalis* (Karny) occurs in the southern United States (Tyler-Julian et al. 2014).

The bean crop where the thrips were collected was planted next to field of sunn hemp. *Megalurothrips usitatus* was abundant in both crops as well as in the butter daisy around them. Sunn hemp is an Indian species used

for many purposes worldwide. In the study area, it is used as a cover crop for reducing erosion, improving the soil, and conserving water. Unfortunately, it also serves as a host for *M. usitatus*.

Suris Campos (2021) discussed the known control options for this pest. Cultural practices must be incorporated in the management strategy for this pest, together with chemical control, biological control, and host plant resistance. Phytosanitary measures must be implemented to prevent the spread of *M. usitatus* to other areas of Central America.

Acknowledgments

Thanks to Rogelio Trabanino for bringing this insect to my attention. Katerin Veroy provided valuable help in the field and laboratory. Ronald D. Cave (University of Florida) and Keith Philips (Western Kentucky University) critically reviewed the manuscript.

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Received February 18, 2022; accepted March 7, 2022.

Review editor Lawrence Hribar.