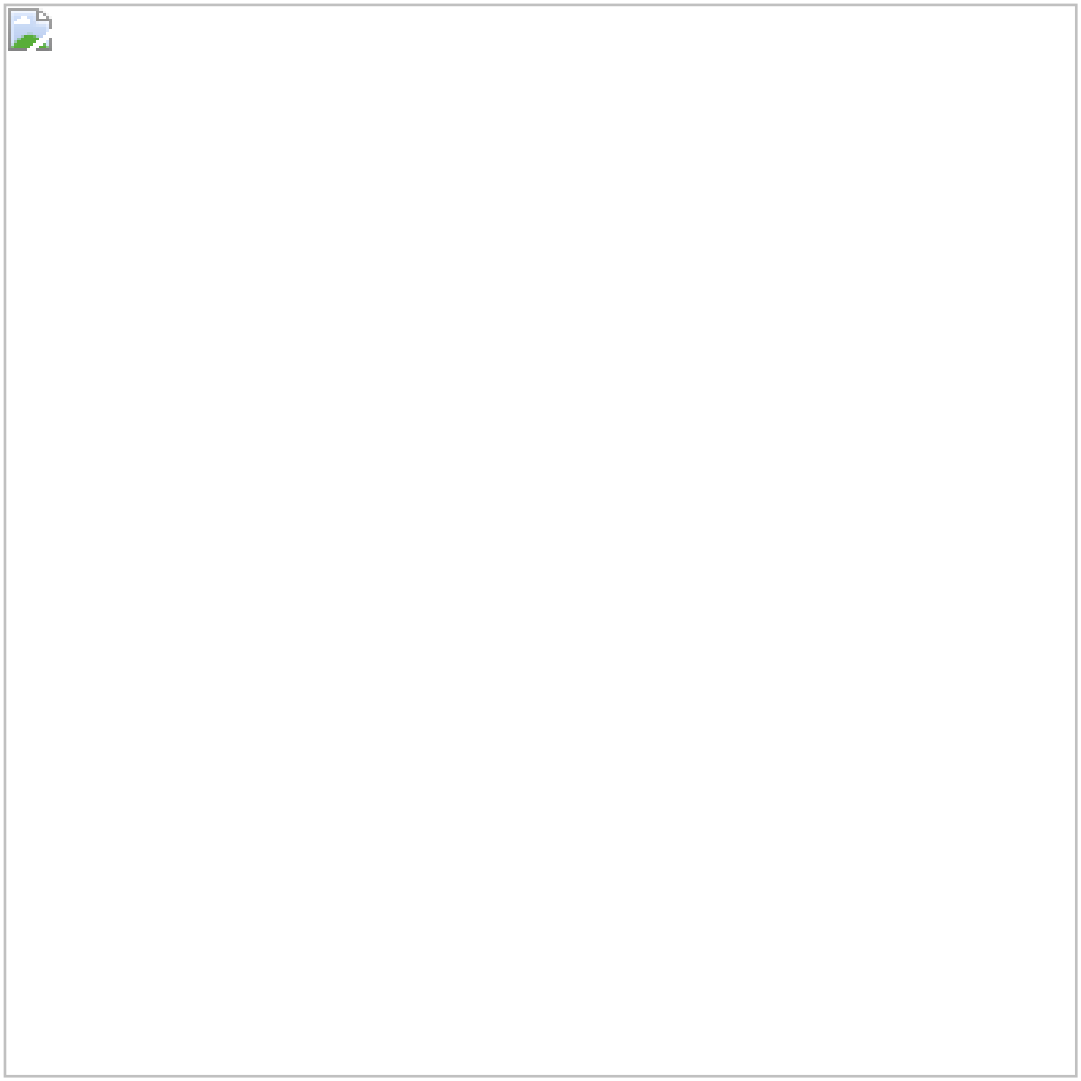

# First Report of the Exotic Species Megalurothrips usitatus (Thysanoptera: Thripidae), Pest of Fabaceae, in Puerto Rico

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# First report of the exotic species *Megalurothrips usitatus* (Thysanoptera: Thripidae), pest of Fabaceae, in Puerto Rico

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*Megalurothrips usitatus* (Bagnall) (Thysanoptera: Thripidae) was detected on common bean (*Phaseolus vulgaris* L.) in fields (18.4650000 °N, 67.0519444 °W) on 3 Mar 2023 in Isabela, Puerto Rico at the Agricultural Experiment Station of the College of Agricultural Sciences of the University of Puerto Rico at Mayagüez (Fig. 1). This is the first report of this thrips species in Puerto Rico. Individuals were collected on Andean bean lines with visible damage to the leaves, meristems, stems and pods. Similar damage was observed in *Phaseolus acutifolius* L. (tepary bean). The plants had chlorotic spots, leaf deformation, leaf bronzing, and necrosis of the veins.


**Fig. 1.** *Megalurothrips usitatus* A) females have dark brown colored bodies and B) males have amber, or light brown bodies. The forewings of both sexes have the middle third and extreme tip greyish brown and a distinct clear band near the distal end of forewing.

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Feeding damage was observed in the meristems, stems and pods. *Megalurothrips usitatus* also was observed on *Glycine max* (L.) (soybean) at a farm (18.0305556 °N, 66.5108333 °W) in Juana Díaz (Puerto Rico). The identification of the specimens was conducted using taxonomic keys of the genus and species of *Megalurothrips* (Bagdall 1913, 1916; Mound 1968; Palmer 1987; Mound & Marullo 1996; Mound 2007; Mound & Ng 2009; Mirab-Balou et al. 2013; Zhang et al. 2019). The identification was corroborated by Dr. Laurence Mound (Commonwealth Scientific and Industrial Research Institute [CSIRO], Canberra, Australia).

One of the important characteristics of this genus is that the first vein of the forewing has a row of about 16 setae at the base, then a gap followed by 2 or 3 setae near the wing apex. The clavus has 4 or 5 veinal setae (Zhang et al. 2020; Mirab-Balou et al. 2013). All individuals of this genus have a pair of dorso apical setae on the first antennal segment, and on tergite VIII there is a patch of microtrichia anterior to the spiracle (Mound & Ng 2009). The morphological characteristics that distinguish the species *M. usitatus* from the other species within this genus are the following: in females, antennal segment III is light-colored whereas in all other similar species of *Megalurothrips* this segment is brown; males have amber, or light brown bodies whereas males of other species are dark brown (Palmer 1987). The forewings have the middle third and extreme tip greyish brown and a distinct clear band near the distal end of forewing in both sexes (Bagnall 1916). On females, tergite VIII has an incomplete posteromarginal comb with medial microtrichia absent. But in males the posterior margin of tergite X is usually with a pair of short stout setae laterally (Mound 1968). Specimens of *M. usitatus* are deposited with Acc No 952-2023 in the Museum of Entomology and Tropical Biodiversity of the Agricultural Experiment Station in Río Piedras (Puerto Rico) as PR Acc No.1 MEBT-I0044641 and No. 2 MEBT-I0044642.

All members of the genus *Megalurothrips* mainly mate and develop in the flowers of tropical Fabaceae, and some are pests of cultivated legumes (Palmer 1987; Masumoto 2010). This invasive pest is native to Asia and is widely distributed in the following countries: Australia, China, Japan, India, Pakistan, Bangladesh, Sri Lanka, Taiwan, and Fiji (Tang et al. 2015; Khan et al. 2022). This thrips recently arrived on the American continent, reported in 2020 in the United States (Soto-Adames 2020) and in western Cuba (Ruiz 2020). It was reported in 2021 in both Mexico (Campos et al. 2023) and Belize (Ministry of Agriculture, Food Security and Enterprises 2021). Most recently, *M. usitatus* was reported in Nicaragua in 2022 (Orozco 2022). The main hosts reported in the literature belong to the family Fabaceae (Palmer 1987; Tang et al. 2015; Zafirah & Azidah 2018).

*Megalurothrips usitatus* can cause substantial yield losses in certain legumes. For example, in Mexico it was reported that cowpea production was reduced by 60% in infested fields (Campos et al. 2023). Similarly in Cuba losses on beans due to *M. usitatus* reached 58% (EFEAgro 2020). Given the high risk that this species may represent in legumes in Puerto Rico, it is necessary to evaluate on which Fabaceae and other local agricultural crops these populations can be established, and which weeds may serve as potential hosts. It is also important to evaluate seasonal changes in populations across different locations on the island, abundance and dispersion in different Fabaceae and efficient management practices to control this pest in Puerto Rico.

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## Summary

*Megalurothrips usitatus* (Bagnall) (Thysanoptera: Thripidae) has been recently found throughout the bean growing regions of Puerto Rico. *Megalurothrips usitatus* was observed affecting the Andean bean lines (*Phaseolus vulgaris* L.), *Glycine max* (L.), and *Phaseolus acutifolius* L. This is the first time *M. usitatus* has been reported from Puerto Rico. Given the high risk that this pest represents to legumes in Puerto Rico, it is necessary to evaluate which bean growing area and which local crops could be most affected.

Key Words: invasive pest; host; yield losses; bean; *Phaseolus*; *Glycine max*

## Sumario

*Megalurothrips usitatus* (Bagnall) (Thysanoptera: Thripidae) se ha encontrado recientemente en todas las regiones productoras de frijol de Puerto Rico. Se observó que *Megalurothrips usitatus* afecta a las líneas de frijol andino (*Phaseolus vulgaris* L.), a *Glycine max* (L.) y también a *Phaseolus acutifolius* L. Esta es la primera vez que se reporta *M. usitatus* en Puerto Rico. Dado el alto riesgo que representa esta plaga para las leguminosas en Puerto Rico, es necesario evaluar qué zona de cultivo de habichuela y qué otros cultivos locales podrían verse más afectados.

Palabras Clave: plaga invasiva; hospederos; pérdida en rendimiento; habichuelas; *Phaseolus*; *Glycine max*

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