ENTOMOLOGICAL Communications

Entomological Communications, 1, 2019: ec01014

Scientific Note

Baru (*Dipteryx alata* Vogel, Fabaceae) as new host of the treehopper *Aetalion reticulatum* (Linnaeus, 1767) (Hemiptera: Aetalionidae)

Marcelo T. Castro[1], Sandro C. L. Montalvão[2], Rose G. Monnerat[2]

[1]Centro Universitário ICESP de Brasília, Distrito Federal, Brasil. [2]Embrapa Recursos Genéticos e Biotecnologia, Distrito Federal, Brasil.
Corresponding author: marceloengflorestal@gmail.com

Edited by: Flavia Rodrigues Fernandes

Received: November 02, 2019. Accepted: December 02, 2019. Published: December 17, 2019.

Abstract. The treehopper *Aetalion reticulatum* (Linnaeus, 1767) (Hemiptera: Aetalionidae) was found infesting three baru trees (*Dipteryx alata* Vogel) in Brasilia, Distrito Federal, Brazil. *Aetalium reticulatum* is considered an important pest and has been reported to damage various agricultural and forest crops. However, this is the first report of this insect in baru, a native tree species from the Brazilian Cerrado, thus expanding the insect's known host range.

Keywords: Phytophagous Insect, Forest Entomology, Damage in Trees.

Baru (*Dipteryx alata* Vogel, Fabaceae) is a native forest species from the Brazilian Cerrado, occurring the Central-West, North, Northeast, and Southeast of Brazil (Lima & Lima 2019). It can reach up to 25 meters in height, with average of 15 meters (Sano et al. 2016). The tree is considered a multi-use species, in which almost all parts of the plant can be used for different purposes, such as food (bark and nut), medicine (bark, trunk, and leaves), and lumber (Sano et al. 2016). Thus, baru can be an alternative source of income for local populations, especially baru nuts.

Some insects have been reported to damage fruits of baru seeds, especially Coleoptera and Lepidoptera larvae (Almeida et al. 1998). To date, the Hemiptera had not been reported as attacking *D. alata*. Therefore, this paper is the first report about the occurrence of a treehopper harmful to the baru and describes the damage constated on three trees located in Brasilia, Brazil.

In January and February 2017, treehoppers were observed infesting three baru trees in different parts of Brasilia, Distrito Federal, Brazil (two at coordinates 15°43'49.2"S, 47°54'00.3"W and one at coordinate 15°44'32.7"S, 47°53'05.0"W). The trees analyzed were mature, about five meters tall, and produced fruit regularly. Insect samples were stored in Falcon® tubes, containing 70% alcohol, and taken to the Entomopathogenic Bacteria Laboratory at Embrapa Genetic Resources and Biotechnology for identification with the aid of stereoscopic microscope. The specimens examined were morphologically/morphometrically compared with the literature (Santos et al. 2015, Zanuncio et al. 2015) to determine the species, and the damage caused by the colonies were characterized and photographed.

Treehoppers were identified as *Aetalion reticulatum* (Linnaeus, 1767) (Hemiptera: Aetalionidae). The insects were observed mainly in the youngest buds and branches of the plants, as well as the peduncles that support the fruits. However, colonies were also observed in more lignified tissues. The main damage symptoms caused by *A. reticulatum* on the trees were deformation of the stem and the apical bud, and a tree had cracks at the apex.

In addition to the treehoppers, bees of the species *Trigona spinipes* (Fabricius, 1793) (Hymenoptera: Apidae) were in mutualistic association with the insect (Fig. 1), in which the bee defends the treehopper from possible predators in exchange for sugary honeydew secretions (Castro 1975). This interaction between the two insect species is already known to science and is apparently not mandatory but may further impair fruit production (Vieira et al. 2007).

Figure 1. Colony with nymph and adult treehopper *Aethalion reticulatum* in interaction with *Trigona spinipes* bees in a baru tree (*Dipteryx alata*) - Brasilia, Brazil.

All stages of insect development (eggs, nymphs, and adults) were found in the three surveyed baru trees, indicating that *A. reticulatum* can develop and reproduce feeding exclusively on *D. alata*. This treehopper feeds on its hosts by the continuous suction of sap, which impairs plant development and the development of new shoots and fruits (Gallo et al. 2002). Some leaves and new shoots of the analyzed three trees presented symptoms of sooty mold, with the formation of a layer of black fungal mycelium, especially on leaves that were near or below the insect colonies. The constant feeding of *A. reticulatum* favors the appearance of the fungus that causes sooty molds (*Capnodium* sp., Capnodiaceae) on the trunk and leaves, which hinders photosynthesis (Chomnunti et al. 2014).

The treehopper *A. reticulatum* has been described as attacking several plant species, especially exotic cultivated species, such as fruit and ornamental trees (Castro & Montalvão 2019a) and is distributed throughout most of the Brazilian territory. It has recently been described as attacking the exotic plants: teak (*Tectona grandis* Linnaeus F.) (Tavares et al. 2018); Yellow trumpetbush (*Tecoma stans* (L.) Juss. Ex Kunth) (Castro & Montalvão 2019b); and noni (*Morinda citrifolia* Linnaeus) (Castro & Montalvão 2019a). In native Brazilian species, the insect has already been reported infesting açai palm (*Euterpe oleraceae* Martius) (Santos et al. 2015) and mulungu-do-litoral (*Erythrina speciosa* Andrews) (Zanuncio et al. 2015), which are

species that occur in the Amazon and Atlantic Forest, respectively. In the Cerrado, the species has already been reported in pequi (*Caryocar brasiliense* Cambess.) in Goiás, Brazil, attacking branches and shoots (Ferreira 2007).

The association of this treehopper with native plants of the Brazilian Cerrado is not well known, and so far, baru had not been reported as an alternative host of this insect. Thus, this paper records the first occurrence of *A. reticulatum* in *D. alata*.

Author's Contributions

MTC: Performed the material collection and analysis; wrote the manuscript. SCLM: Performed the material collection and analysis; wrote the manuscript. RGM: Contributed to the interpretation of the results.

References

Almeida, S. P.; Proença, C. E. B.; Sano, S. M.; Ribeiro, J. F. (1998). *Cerrado: Espécies vegetais úteis*. Planaltina: EMBRAPA-CPAC.

Castro, M. T.; Montalvão, S. C. L. (2019a). Primeiro relato de *Aetalion reticulatum* (L.) (Hemiptera: Aetalionidae) infestando plantas de noni [*Morinda citrifolia* L. (Rubiaceae)]. *EntomoBrasilis*, 12(2): 81-83. doi: 10.12741/ebrasilis.v12i2.795

Castro, M. T.; Montalvão, S. C. L. (2019b). Infestação da cigarrinha *Aetalion reticulatum* (Hemiptera: Aetalionidae) em plantas de amarelinho (*Tecoma stans*) em Brasília, Brasil. *Revista Científica Eletrônica de Engenharia Florestal*, 33(1): 28-34.

Castro, P. R. C. (1975). Mutualismo entre *Trigona spinipes* (Fabricius, 1793) e *Aethalion reticulatum* (L., 1767) em *Cajanus indicus* Spreng. na presença de *Camponotus* spp. *Ciência e Cultura*, 27(5): 537-539.

Chomnunti P.; Hongsanan, S.; Hudson, B. A.; Tian, Q.; Peršoh, D.; Dhami, M. K.; Alias, A. S.; Xu, J.; Liu, X.; Stadler, M.; Hyde, K. D. (2014). The Sooty Moulds. *Fungal Diversity*, 66: 1-36. doi: 10.1007/s13225-014-0278-5

Ferreira, G. A. (2007). Produção de frutos e entomofauna associada ao pequizeiro (*Caryocar brasiliense* Camb.) no cerrado do estado de Goiás. Tese de doutorado, Universidade Federal de Goiás, Goiânia, GO, Brasil.

Gallo, D.; Nakano, O.; Silveira Neto, S.; Carvalho, R. R. L.; Batista, G. C.; Berti Filho, E.; Parra, J. R. P.; Zucchi, R. A.; Alves, S. B.; Vendramin, J. D.; Marchini, L. C.; Lopes, J. R. S.; Omoto, C. (2002). *Entomologia Agrícola*. Piracicaba: FEALQ.

Lima, H. C.; Lima, I. B. (2019). *Dipteryx* in Lista de Espécies da Flora do Brasil. Jardim Botânico do Rio de Janeiro. Disponível em: <http://floradobrasil.jbrj.gov.br/jabot/floradobrasil/FB29628>. Access in: 22 out. 2019

Sano, S. M.; Brito, M. A.; Ribeiro, J. F. (2016). *Dipteryx alata*: Baru. In: Vieira, R. F.; Camillo, J.; Coradin, L. Espécies nativas da flora brasileira de valor econômico atual ou potencial: plantas para o futuro: Região Centro-Oeste. Brasília, DF: MMA. (Série Biodiversidade 44).

Santos, R. S.; Creão-Duarte, A. J.; Lunz, A. M. P. (2015). Infestação de *Aetalion reticulatum* (Linnaeus) (Hemiptera: Auchenorrhyncha: Aethalionidae) em Plantas de *Euterpe oleracea* Martius (Arecaceae) no Estado do Acre. *EntomoBrasilis*, 8(1): 69-73. doi: 10.12741/ebrasilis.v8i1.450

Tavares, T. A.; Fonseca, A. G.; Sousa, F. F.; Assis Júnior, S. L. (2018). Ocorrência de *Aethalion reticulatum* Linnaeus (Hemiptera: Aethalionidae) em *Tectona grandis* Linn. f. (Verbenaceae) em Minas Gerais, Brasil. *EntomoBrasilis*, 11(3): 220-222. doi: 10.12741/ebrasilis.v11i3.752

Vieira, C. U.; Rodovalho, C. M.; Almeida, L. O.; Siquieroli, A. C. S.; Bonetti, A. M. (2007). Interação entre *Trigona spinipes* Fabricius, 1793 (Hymenoptera: Apidae) e *Aethalion reticulatum* Linnaeus, 1767 (Hemiptera: Aethalionidae) em *Mangifera indica* (Anacardiaceae). *Bioscience Journal, Supplement* 1, 23: 10-13.

Zanuncio, A. J. V.; Serrão, J. E.; Pereira, A. I. A.; Soares, M. A.; Wilcken, C. F.; Leite, G. L. D.; Zanuncio, J. C. (2015). *Aethalion reticulatum* (Hemiptera: Aethalionidae) Feeding on *Erythrina speciosa* (Fabales: Fabaceae): First Record of Its Host Plant and Damage Characteristics. *Florida Entomologist*, 98(1): 175-177. doi: 10.1653/024.098.0130