BioOne COMPLETE

Brontocoris tabidus (Heteroptera: Pentatomidae) Preying on Podalia walkeri (Lepidoptera: Megalopygidae) on Eucalypt Plants in Brazil

Authors: De Menezes, Claubert W. G., Soares, Marcus A., De Assis Júnior, Sebastião L., De Menezes, Sady Júnior M. C., Dos Santos, José B., et al.

Source: Florida Entomologist, 96(1) : 261-263

Published By: Florida Entomological Society

URL: https://doi.org/10.1653/024.096.0141

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Downloaded From: https://bioone.org/journals/Florida-Entomologist on 28 Mar 2024
Terms of Use: https://bioone.org/terms-of-use

BRONTOCORIS TABIDUS (HETEROPTERA: PENTATOMIDAE) PREYING ON *PODALIA WALKERI* (LEPIDOPTERA: MEGALOPYGIDAE) ON EUCALYPT PLANTS IN BRAZIL

Claubert W. G. De Menezes[1], Marcus A. Soares[1,*], Sebastião L. De Assis Júnior[2], Sady Júnior M. C. De Menezes[3], José B. Dos Santos[1] and José C. Zanuncio[4*]

[1]Departamento de Agronomia, Universidade Federal dos Vales do Jequitinhonha e Mucuri (UFVJM), Diamantina, 39100-000, Minas Gerais State, Brazil

[2]Departamento de Engenharia Florestal, Universidade Federal dos Vales do Jequitinhonha e Mucuri (UFVJM), Diamantina, 39100-000, Minas Gerais State, Brazil

[3]Instituto de Três Rios (ITR), Universidade Federal Rural do Rio de Janeiro (UFRRJ), Três Rios, 25802-100, Rio de Janeiro State, Brazil

[4]Departamento de Biologia Animal, Universidade Federal de Viçosa (UFV), Viçosa, 36570-000, Minas Gerais State, Brazil

*Corresponding author; E-mail: marcusasoares@yahoo.com.br

Eucalyptus spp. (Myrtales: Myrtaceae: Eucalypteae) are intensively cultivated in Brazil to produce raw materials for industry and construction, and products such as wood, coal, cellulose, and oils (Zanuncio et al. 2010). Lepidopteran defoliators are found in eucalyptus plantations whose importance is increasing (Soares et al. 2009a). Integrated Pest Management (IPM) can reduce the use of pesticides (Pires et al. 2011a; Souza et al. 2012) and conservation of natural enemies is essential for IPM programs to manage lepidopteran pests in eucalyptus plantations (Lacerda et al. 2004).

Caterpillars recorded damaging eucalyptus in Brazil includes *Automeris* sp. (Walker), *Eacles imperiales* (Walker) and *Hylesia* sp. Hübner (Lepidoptera: Saturniidae), *Eupseudosoma aberrans* (Schaus) and *Eupseudosoma involuta* (Sepp) (Lepidoptera: Arctiidae), *Oxydia vesulia* (Cramer), *Sabulodes caberata* (Guenée) and *Thyrinteina arnobia* (Stoll) (Lepidoptera: Geometridae), *Euselasia eucerus* (Hewitson) (erroneously reported as *Euselasia apisaon*) and *Euselasia hygenius* (Stoll) (Lepidoptera: Riodinidae) (Zanuncio et al. 1998; Soares et al. 2009b,c).

Podalia walkeri (Berg) (Lepidoptera: Megalopygidae) was reported to be a significant defoliator in eucalyptus plantations in Minas Gerais State, Brazil (Zanuncio et al. 1998); hence the necessity of studying natural enemies of this pest as part of IPM programs.

The objective of this study was to record and to elaborate the preying of *Brontocoris tabidus* (Signoret) (Heteroptera: Pentatomidae) on *P. walkeri* caterpillars on eucalyptus plants. In Jan 2012 fourth instar nymphs of *B. tabidus* were observed feeding on *P. walkeri* caterpillars (Fig. 1A, B, C and D) on *Eucalyptus urophylla* S. T. Blake in Diamantina (S 18° 18' W -43° 36', mean annual rainfall 1082 mm, mean annual temperature of 19.4 °C and 1250 m asl), Minas Gerais State, Brazil.

Monitored eucalyptus trees were 4 yr old. Immature *B. tabidus* were collected and sent to the Laboratory of Biological Control of Insects of the Federal University of the Jequitinhonha and Mucuri Valleys (UFVJM). These insects were reared on eucalyptus seedlings with *Tenebrio molitor* L. (Coleoptera: Tenebrionidae) pupae until the adult stage, when they could be identified at the species level.

The preying of *B. tabidus* on *P. walkeri* caterpillars is important for the IPM of this pest in eucalyptus plantations. Preliminary studies indicate that nymphs of *B. tabidus* can dominate and kill a caterpillar of *P. walkeri* in 16 min, and may consume several *P. walkeri* caterpillars before eclosing into the adult. Caterpillars of *P. walkeri* have previously been reported to damage this plant in Minas Gerais State (Zanuncio et al. 1998) and Rio Grande do Sul State (Bernardi et al. 2011). This pest is a significant defoliator of eucalyptus plants, and there are no effective strategies for its control in commercial plantations. Besides, the stinging hairs of *P. walkeri* caterpillars can cause health problems in humans (Cardoso & Haddad Júnior 2005; De Roodt et al. 2000).

Brontocoris tabidus is a generalist predator that naturally controls defoliating insects in *Eucalyptus* plantations in Brazil. This species is the first to arrive in areas infested by defoliating caterpillars, followed by other predator species, especially *Podisus nigrispinus* Dallas (Pentatomidae); and these natural enemies build large populations in the field (Zanuncio et al. 2011). Moreover, *B. tabidus* is easily reared in the laboratory and has potential for biological control programs (Pires et al. 2011b; Zanuncio et al. 2011). Thus, studies on the biology and mass rearing of *B. tabidus* and its predation rate on *P. walkeri* both in the laboratory and the field are being conducted in order to allow the use of this natural enemy in biological control programs of *P. walkeri* caterpillars.

Downloaded From: https://bioone.org/journals/Florida-Entomologist on 28 Mar 2024
Terms of Use: https://bioone.org/terms-of-use

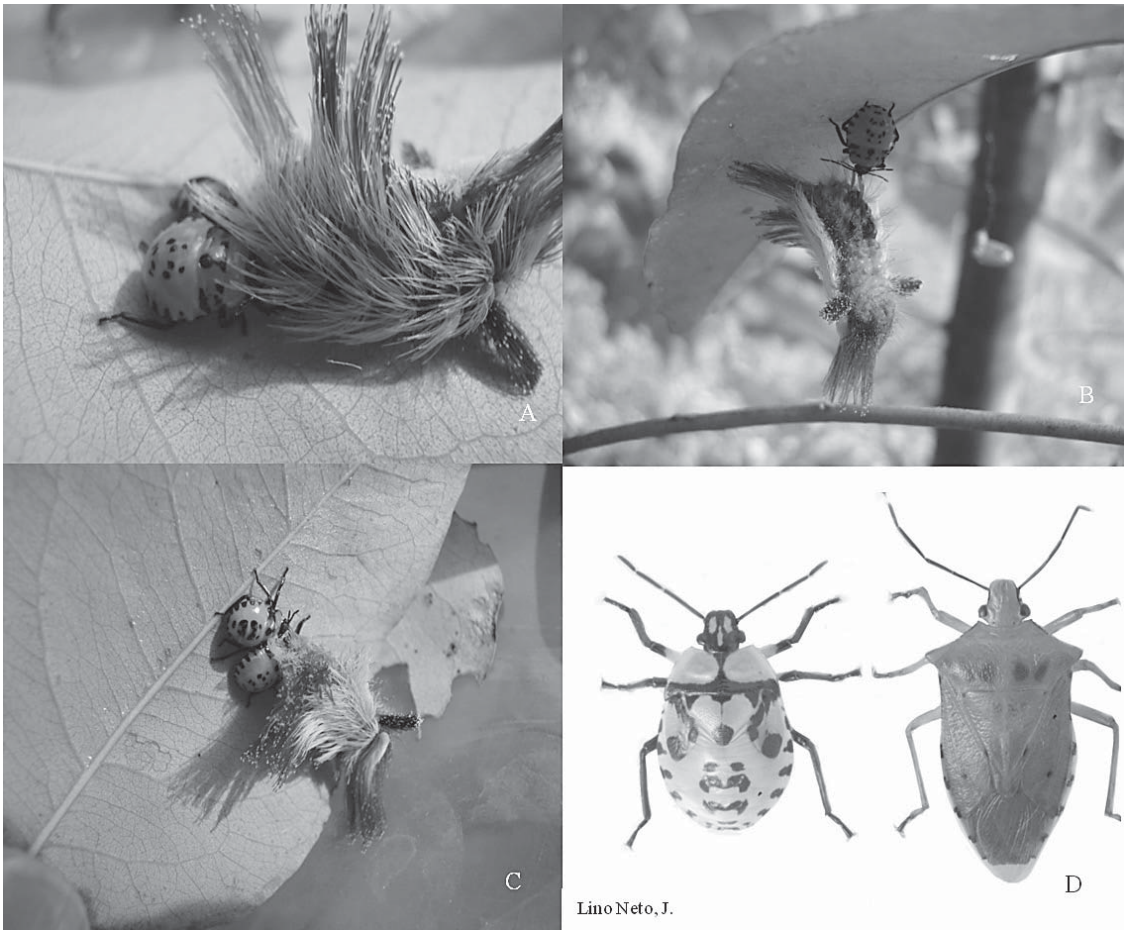


Fig. 1. Nymphs of *Brontocoris tabidus* (Signoret) (Heteroptera: Pentatomidae) preying on *Podalia walkeri* (Berg) (Lepidoptera: Megalopygidae) (A, B and C) on eucalyptus plants in Diamantina, Minas Gerais State, Brazil. Fourth instar nymph preying in the field and *B. tabidus* adult (D).

This is the first report *B. tabidus* preying on *P. walkeri* in Brazil. Our observations suggest that *B. tabidus* has the potential to suppress *P. walkeri* caterpillars as a component of IPM programs in eucalyptus plantations. This predator appears able to keep populations of *P. walkeri* below the economic injury level, and thereby preclude the excessive use of pesticides, and minimize losses in eucalyptus production as well as accidents involving workers in eucalyptus plantations.

Summary

There are many *Eucalyptus* spp. of commercial importance in Brazil. However, plants of this genus can be damaged by lepidopteran defoliators, which necessitates the development of Integrated Pest Management (IPM) programs against these pests. We observed significant levels of predation of *Podalia walkeri* (Berg) (Lepidoptera: Megalopygidae) caterpillars by *Brontocoris tabidus* (Signoret) (Heteroptera: Pentatomidae) on eucalyptus plants in Diamantina, Minas Gerais State, Brazil. Our observations suggest that *B. tabidus* has the potential to suppress *P. walkeri* caterpillars as a component of IPM programs in eucalyptus plantations.

Key Words: Asopinae, biological control, caterpillars, IPM, Pentatomidae

Resumo

Eucalyptus spp. possui várias espécies de interesse comercial no Brasil. No entanto, plantas desse gênero podem ser danificas por lepidópteras desfolhadoras, o que torna necessário o Manejo Integrado de Pragas (MIP) para esses insetos. Foi relatada, neste trabalho, a predação da lagarta *Podalia walkeri* (Berg) (Lepidoptera: Megalopygidae) pelo percevejo predador *Brontocoris tabi-*

Downloaded From: https://bioone.org/journals/Florida-Entomologist on 28 Mar 2024
Terms of Use: https://bioone.org/terms-of-use

dus (Signoret) (Heteroptera: Pentatomidae), em plantas de eucalipto no município de Diamantina, Minas Gerais, Brasil.

Palavras Chave: Asopinae, controle biológico, lagartas, MIP, Pentatomidae

Acknowledgments

We express gratitude to "Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES)" and "Fundação de Amparo à Pesquisa do Estado de Minas Gerais (Fapemig)".

References Cited

Bernardi, O., Garcia, M. S., Silva, E. J. E., Zazycki, L. C. F., Bernardi, D., and Finkenauer, E. 2011. Levantamento populacional e análise faunística de Lepidoptera em *Eucalyptus* spp. no município de Pinheiro Machado, RS. Ciência Florestal 21: 735-744.

Cardoso, A. E. C., and Haddad Júnior, V. 2005. Acidentes por lepidópteros (larvas e adultos de mariposas): estudo dos aspectos epidemiológicos, clínicos e terapêuticos. An. Brasileiros Dermatol. 80: 571-578.

De Roodt, A. R., Salomon, O. D., and Orduna, T. A. 2000. Accidents due to Lepidoptera with special reference to *Lonomia* sp. Medicina-Buenos Aires 60: 964-972.

Lacerda, M. C., Ferreira, A. M. R. M., Zanuncio, T. V., Zanuncio, J. C., Bernardino, A. S., and Espindula, M. C. 2004. Development and reproduction of *Podisus distinctus* (Heteroptera: Pentatomidae) fed on larvae of *Bombyx mori* (Lepidoptera: Bombycidae). Brazilian J. Biol. 64: 237-242.

Pires, E. M., Moreira, I., Soares, M. A., Ferreira, J. A. M., Pinto, R., and Zanuncio, J. C. 2011a. *Oxymerus aculeatus* (Coleoptera: Cerambycidae) causing damage on corn plants (*Zea mays* L.) in Brazil. Rev. Colombiana Entomol. 37: 85-86.

Pires, E. M., Zanuncio, J. C., and Serrão, J. E. 2011b. Canibalism of *Brontocoris tabidus* and *Podisus nigrispinus* during periods of pre-realese without food or fed with *Eucalyptus cloezian* plants. Phytoparasitica 31: 27-34.

Soares, M. A., Zanuncio, J. C., Leite, G. L. D., Wermelinger E. D., and Serrão, J. E. 2009a. Does *Thyrinteina arnobia* (Lepidoptera: Geometridae) use different defense behaviours against predators? J. Plant Dis. Prot. 116: 30-33.

Soares, M. A., Torres-Gutierrez, C., Zanuncio, J. C., Pedrosa, A. R. P., and Lorenzon, A. S. 2009b. Superparasitismo de *Palmistichus elaeisis* (Hymenoptera: Eulophidae) y comportamiento de defensa de dos hospederos. Rev. Colombiana de Entomol. 35: 62-65.

Soares, M. A., Zanuncio, T. V., Zanuncio, J. C., Mielke O. H. H., and Serrão, J. E. 2009c. *Euselasia mys lara* (Stichel, 1919) (Lepidoptera: Riodinidae) a potential pest on *Eucalyptus* in Brazil? J. Res. Lepid. 41: 80-82.

Souza, G. K., Pikart, T. G., Pikart, F. C., Serrão, J. E., Wilcken, C. F., and Zanuncio, J. C. 2012. First record of a native heteropteran preying on the introduced pest, *Thaumastocoris peregrinus* (Hemiptera: Thaumastocoridae), in Brazil. Florida Entomol. 95: 517-520.

Zanuncio, T. V., Zanuncio, J. C., Miranda, M. M. M., and Medeiros, A. G. B. 1998. Effect of plantation age on diversity and population fluctuation of Lepidoptera collected in *Eucalyptus* plantations in Brazil. Forest Ecol. Mgt 108: 91-98.

Zanuncio, A. J. V., Pastori, P. L., Kirkendall, L. R., Lino-Neto, J., Serrão, J. E., and Zanuncio, J. C. 2010. *Megaplatypus mutatus* (Chapuis) (Coleoptera: Curculionidae: Platypodinae) attacking hybrid *Eucalyptus* clones in southern Espirito Santo, Brazil. Coleopts. Bull. 64: 81-83.

Zanuncio, J. C., Ferreira, A. M. R. M., Tavares, W. S., Torres, J. B., Serrão, J. E., and Zanuncio, T. V. 2011. Rearing the predator *Brontocoris tabidus* (Heteroptera: Pentatomidae) with *Tenebrio molitor* (Coleoptera: Tenebrionidae) pupa on *Eucalyptus grandis* in the field. American J. Plant Sci. 2: 282-288.

Downloaded From: https://bioone.org/journals/Florida-Entomologist on 28 Mar 2024
Terms of Use: https://bioone.org/terms-of-use