

Occurrence of *Tropidacris collaris* (Orthoptera: Acridoidea: Romaleidae) Damaging *Casuarina glauca* (Casuarinaceae) Plants in the Municipality of Central Bahia, Brazil

Authors: Poderoso, Júlio César M., Da Costa, Maria Kátia M., Correia-Oliveira, Maria E., Dantas, Priscylla C., Zanuncio, José C., et al.

Source: Florida Entomologist, 96(1) : 268-269

Published By: Florida Entomological Society

URL: <https://doi.org/10.1653/024.096.0143>

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.

OCCURRENCE OF *TROPIDACRIS COLLARIS* (ORTHOPTERA: ACRIDOIDEA: ROMALEIDAE) DAMAGING *CASUARINA GLAUCA* (CASUARINACEAE) PLANTS IN THE MUNICIPALITY OF CENTRAL BAHIA, BRAZIL

JÚLIO CÉSAR M. PODEROSO¹, MARIA KÁTIA M. DA COSTA², MARIA E. CORREIA-OLIVEIRA^{3,*}, PRISCYLLA C. DANTAS⁴,
JOSÉ C. ZANUNCIO¹ AND GENÉSIO T. RIBEIRO⁴

¹Departamento de Entomologia, Universidade Federal de Viçosa, Viçosa, Minas Gerais State, Brazil

²Departamento de Biodiversidade e Ecologia, Pontifícia Universidade Católica do Rio Grande do Sul, Faculdade de Biociências - Porto Alegre, Rio Grande do Sul-Brazil

³Departamento de Entomologia e Acarologia – Escola Superior de Agricultura Luiz de Queiroz, Universidade de São Paulo, Piracicaba, São Paulo State, Brazil

⁴Departamento de Engenharia Florestal, Universidade Federal de Sergipe, São Cristóvão Sergipe State, Brazil

*Corresponding author; E-mail: emilenebio@hotmail.com

Casuarina glauca (ex Sieb. Spring, 1826) (Fagales: Casuarinaceae), native to Australia, is a fast-growing, medium-sized evergreen tree of 10-15 m to 25 m high and 3 feet (91 cm) in diam at the base with gray bark on new branches and brown dark on the old ones. It has a high tannin content (between 6 and 18%). The most common use of *C. glauca* is for fuel. *Casuarina* wood is reddish and hard, and is used also for handles, fences, beams and piles (Midgley 1983).

Grasshoppers are serious pests in various regions of the world (Lecoq & Sukirno 1999). Romaleidae is a diverse Neotropical grasshopper family with 467 species in 109 genera. Grasshoppers in this family are large and sturdy with brilliantly colored front wings (Amédégnato 1974).

Here we report the occurrence and damage caused by a single species of grasshopper on *C. glauca* plants in the region of the Baixio do Irecê, municipality of Central Bahia, Bahia State, Brazil. This semi-arid region is located in the north-

west of Bahia State (S 11° 08' 09" W -42° 06' 46"), and it has an Haplic Cambisol clay soil type, an equatorial tropical climate, mean annual rainfall of 605 mm and a dry season from Apr to Oct. The planting used in this study was composed of 70 *C. glauca* trees interspersed with fruit trees.

The percentage of *C. glauca* trees with some defoliation was calculated by dividing the number of plants attacked by the total sampled plants. To determine the degree of defoliation trees were classified into grades defoliation 0, 30, 70 and 100% and the average defoliation was calculated. Samples of grasshopper adults were collected manually for identification (Fig. 1) and stored in 70% ethanol. The adults were pinned in the laboratory and sent for identification to the Pontifical Catholic University of Rio Grande do Sul, where they were identified by Dra. Maria Kátia M. da Costa as *Tropidacris collaris* (Stoll, 1813) (Orthoptera: Acridoidea: Romaleidae) by consulting Carbonell (1984, 1986).



Fig. 1: A. Adult grasshopper, *Tropidacris collaris*; B. Damage to *Casuarina glauca* caused by *Tropidacris collaris*.

Individuals of *Tropidacris collaris* were found on 100% of the *C. glauca* trees, which had an average height of 17.60 m and were 12 yr old. These trees were defoliated from the bottom upward, and the majority (86%) had up to 50% of canopy damaged. Nymphs of all stages and adult grasshoppers were observed and fourth and fifth instar nymphs were predominant. The number of these grasshoppers varied from 2 to 82 per tree. First instar individuals stayed grouped while those of the other instars, being more voracious and active, dispersed during the day, but re-aggregated again during the last h of the day and remained so during the night.

Adjacent to the area of *C. glauca* trees, there was an orchard with *Cocos nucifera* L. (Arecaceae), *Psidium guajava* L. (Myrtaceae), *Malpighia emarginata* DC. (Malpighiaceae), *Spondias lutea* L. and *S. tuberosa* L. (Anacardiaceae), *Citrus* spp. (Rutaceae), *Carica papaya* L. (Caricaceae), *Mangifera indica* L. (Anacardiaceae) and *Ficus* spp. (Moraceae). Despite the abundance of tropical fruit tree species in the area, just a few coconut trees were damaged by the grasshoppers.

The preference of *T. collaris* for *C. glauca* may be the result of the lack of defenses against this insect, possibly because *C. glauca* is an exotic plant, and exotics usually have low defenses against pests because they did not coevolve with them (Parker & Hay 2005).

This paper reports the first occurrence of *T. collaris* damaging *C. glauca* plants. Thus this grasshopper is a new pest and therefore it should be included in phytosanitary monitoring and plant pest management programs in *C. glauca* plantations.

SUMMARY

Severe damage to *Casuarina glauca* trees (Sieb. ex. Spreng, 1826) (Fagales: Casuarinaceae), observed in the municipality of Central, Bahia State, Brazil, was caused by nymphs and adults of the grasshopper, *Tropidacris collaris* (Stoll, 1813) (Orthoptera, Acridoidea; Romaleidae). *Tropidacris collaris* grasshoppers were found on 100% of the *C. glauca* trees. These trees were defoliated from the bottom upwards to the

apex, and the majority (86%) had up to 50% of canopy damaged. This is the first record of *T. collaris* attacking *C. glauca* in Brazil.

Key Words: grasshopper, Australia pine, defoliation, polyphagous insect

RESUMO

Danos às plantas *Casuarina glauca* (Sieb. ex Spreng, 1826.) (Fagales: Casuarinaceae) foram observados no município de Central, Bahia, Brasil causada por ninfas e adultos do gafanhoto *Tropidacris collaris* (Stoll, 1813) (Orthoptera, Acridoidea: Romaleidae). Gafanhotos foram encontrados em 100% das plantas que causam danos a partir da base para o ápice e, até 50% das copas de 86% das árvores desfolhadas. Este é o primeiro registro de *T. collaris* atacando *C. glauca* no Brasil.

Palavras Chave: Gafanhoto, pinheiro, desfolhador, inseto polífago

ACKNOWLEDGMENTS

We express thanks to “Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq)” and “Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES)” for financial support.

REFERENCES CITED

- AMÉDÉGNATO, C. 1974. Les genres d'Acridiens néotropicaux leur classification par familles sous-familles et tribus. *Acrida* 3: 193-204
- CARBONELL, C. S. 1984 Nomenclature and systematic of *Tropidacris* and *Eutropidacris* (Orthoptera, Acridoidea, Romaleidae). *Notulae Naturae* 461: 1-11
- CARBONELL, C. S. 1986. Revision of the neotropical genus *Tropidacris* (Orthoptera, Acridodea, Romaleidae, Romaleinae). *PNAS* 138: 366-402.
- PARKER, J. D., AND HAY, M. E. 2005. Biotic resistance to plant invasions? Native herbivores prefer non-native plants. *Ecol. Lett.* 8: 959-967.
- LECOQ, M., AND SUKIRNO. 1999. Drought and an exceptional outbreak of the Oriental migratory locust, *Locusta migratoria manilensis* (Meyen 1835) in Indonesia (Orthoptera: Acrididae). *J. Orthopt. Res.* 8: 153-161
- MIDGLEY, S. J., TURNBULL, J. W., AND JOHNSTON, R. D. 1983. *Casuarina* ecology, management and utilization. CSIRO, Melbourne, Australia. 286 pp.