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

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

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*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 northwest 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).

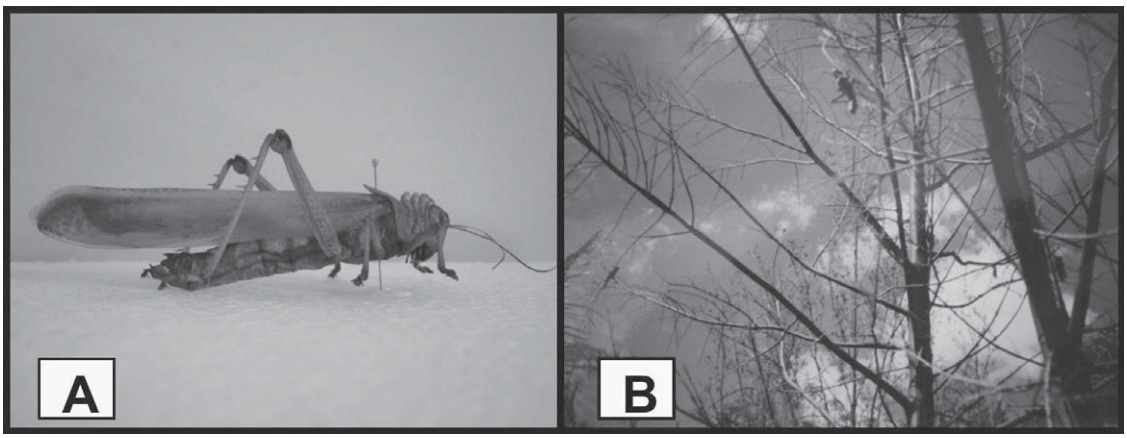


Fig. 1: A. Adult grasshopper, *Tropidacris collaris*; B. Damage to *Casuarina glauca* caused by *Tropidacris collaris*.

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


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## 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, Romaleideae). 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 nonnative 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.