

# On the Presence of Five Species of Naupactini (Coleoptera: Curculionidae) Damaging Soybean in Brazil

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## Abstract

We report five broad-nosed weevils of the tribe Naupactini, *Naupactus leucoloma* Boheman, *Naupactus minor* (Buchanan), *Naupactus peregrinus* (Buchanan), *Naupactus tremolerasi* Hustache and *Pantomorus viridisquamosus* (Boheman) (Coleoptera: Curculionidae) damaging soybean plants in the state of Rio Grande do Sul, Brazil. Some of these species are recorded for the first time in Brazil, and they all belong to species groups naturally distributed in the prairies of southern Brazil, Uruguay, Central Argentina and Paraguay. Three of them have been introduced, established and expanded in other countries outside South America. The five species in conjunction with other native species of Naupactini could cause severe damages to soybean crops if the root-feeding larvae attack young growing plants.

The main purpose of this note is to report five species of Naupactini damaging soybean in the state of Rio Grande do Sul during the last 5 years. Some of them are recorded for the first time in Brazil or in the state of Rio Grande do Sul. The weevil fauna of this Brazilian state is poorly known, mostly due to the lack of sampling and the scarce representation of material from this area in the main entomological collections throughout the world.

The specimens collected for the present study have been deposited in the collection of the Departamento de Defesa Fitossanitária, Universidade Federal de Santa Maria, Santa Maria, Rio Grande do Sul, Brazil and the Museo de La Plata, La Plata, Argentina.

According to our survey, the most frequent species associated with soybean in Rio Grande do Sul were *Naupactus leucoloma* Boheman, *Naupactus minor* (Buchanan), *Naupactus peregrinus* (Buchanan), *Naupactus tremolerasi* Hustache and *Pantomorus viridisquamosus* (Boheman), along with *Naupactus purpureoviolaceus* Hustache, previously recorded by Link & Busanello (1982). The three former species belong to the *N. leucoloma*

species group (Lanteri & Marvaldi 1995), known as “white-fringed weevils” due to the presence of a scaly white stripe along the body flanks, from the rostrum to the apex of the elytra. They are closely related based on morphological and molecular evidence (Hardwick *et al* 1997, Scataglini *et al* 2005), and are also related to *N. tremolerasi* and *N. purpureoviolaceus* based on recent phylogenetic analyses (Lanteri *et al* 2010).

In Argentina, some of these species take part of the so-called alfalfa weevil complex (Lanteri 1994), a group of about 20 species of the *Pantomorus–Naupactus* complex (Scataglini *et al* 2005), some of which are currently associated to soybean crops. Larvae can cause the most severe damage, since they are able to kill young plants (Tonet *et al* 2000).

*Naupactus leucoloma* (Fig 1a) has been reported in several localities in Argentina, Brazil, Uruguay and Paraguay, and it has been introduced into Chile, Peru, Mexico, USA, South Africa, Australia and New Zealand (Lanteri & Marvaldi 1995, Guzmán *et al* 2012). In Rio Grande do Sul, it was formerly cited damaging potatoes (*Solanum tuberosum*) (Solanaceae), strawberry (*Fragaria x ananassa*)

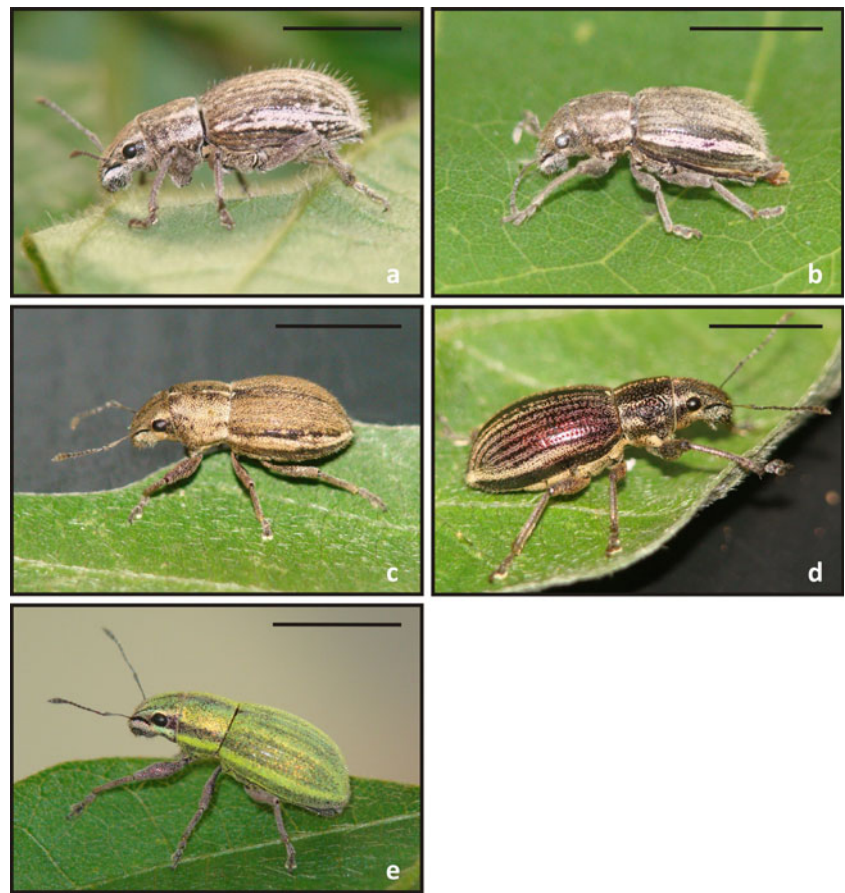


Fig 1 Adults: **a** *Naupactus leucoma*, **b** *Naupactus minor*, **c** *Naupactus peregrinus*, **d** *Naupactus tremolerasi*, **e** *Pantomorus viridisquamosus* (scale 5 mm).

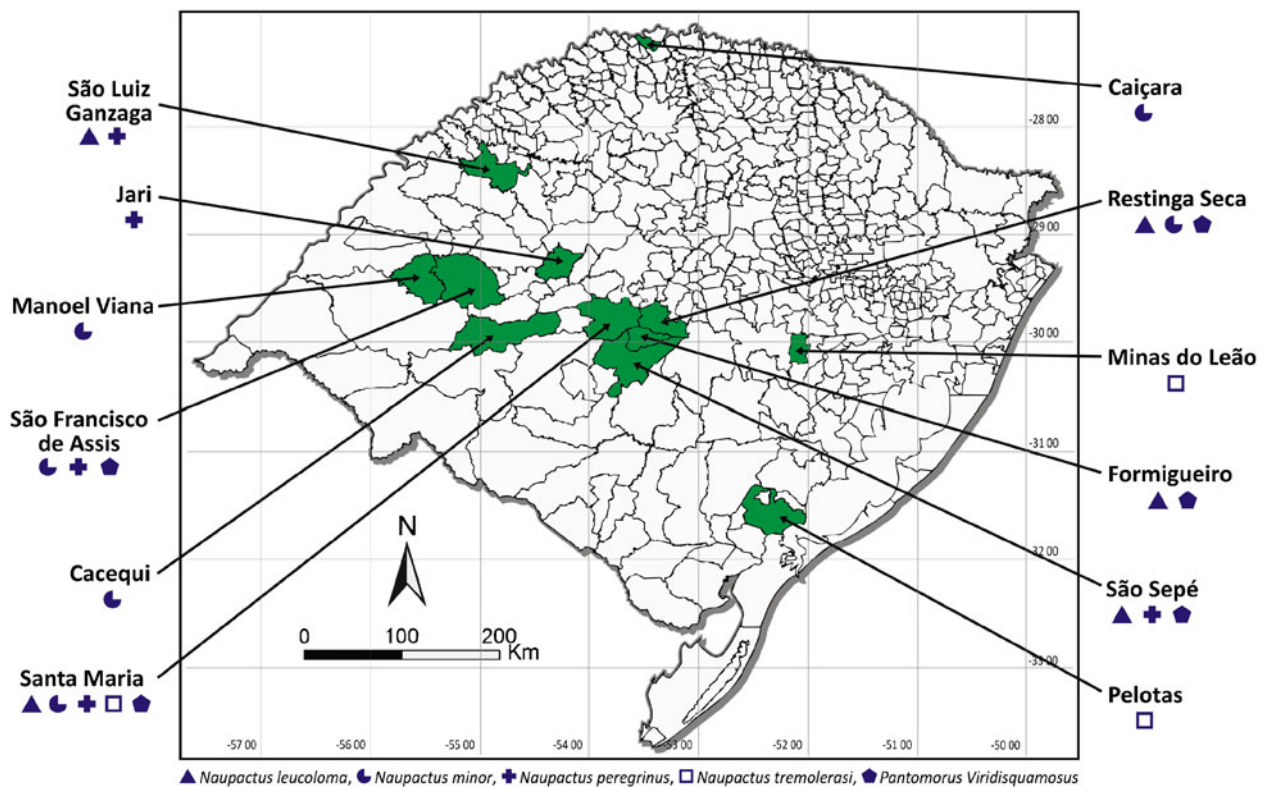


Fig 2 Localities for the occurrence of the five Naupactini species that attack soybean in the state of Rio Grande do Sul, Brazil.

(Rosaceae) (Silva *et al* 1968) and *Phaseolus vulgaris* (Fabaceae) (Lanteri & Marvaldi 1995). It is herein reported for the first time damaging soybean in four localities of this Brazilian state (Fig 2).

*Naupactus minor* (Fig 1b) and *N. peregrinus* (Fig 1c) are recorded for the first time in Brazil. *N. minor* is known to occur in central eastern Argentina, Uruguay and USA, while *N. peregrinus* is also known to Paraguay (Lanteri & Marvaldi 1995). *Naupactus minor* was recorded in six, and *N. peregrinus* in five localities in Rio Grande do Sul (Fig 2), a state that is probably part of their natural distribution range.

*Naupactus tremolerasi* (Fig 1d) has been recorded for Uruguay and southern Brazil, in the state of Santa Catarina (Hustache 1947). It has been sampled on *Helianthus annuus* (Asteraceae) in the state of Rio Grande do Sul, and herein first cited in three localities of this state, damaging soybean (Fig 2).

*Pantomorus viridisquamosus* (Fig 1e) belongs to the homonymous species group (Lanteri & Loíacono 1990). It naturally occurs in Argentina, Uruguay and southern Brazil (states of Santa Catarina and Paraná) and it was occasionally introduced into the Mauritius Island (Lanteri & Loíacono 1990). It has been collected in six localities of Rio Grande do Sul (Fig 2).

All the species herein mentioned are flightless because of their reduced metathoracic wings. They reproduce by apomictic parthenogenesis (Lanteri & Normark 1995, Rodríguez *et al* 2010), which would favour their introduction and expansion into new areas. In the countries where these species have been introduced and expanded (Chile, USA, Australia and New Zealand), there are no males at all (Guzmán *et al* 2012).

Injuries by *Pantomorus* and *Naupactus* species are mainly caused by larvae due to the damage to the underground parts of seedlings and roots, with the consequent wilting or death of the plants (Lanteri 1994, Lanteri *et al* 2002). The adults of these weevils cause injuries on the leaves (edges with semicircular indentations) without causing significant reduction in the leaf area.

The five species herein reported for the state of Rio Grande do Sul, together with other Naupactini naturally occurring in the same area, would form an assemblage that could severely affect soybean crops, especially when the larvae attack young growing plants.

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