



Scientific Note

First record of *Mahanarva spectabilis* (Distant) (Hemiptera: Cercopidae) in the state of Acre, Brazil

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EntomoBrasilis 14: e962 (2021)

Edited by:

Rafael Boldrini

Article History:

Received: 09.viii.2021

Accepted: 11.iv.2021

Published: 24.x.2021

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Funding agencies:

↪ Without funding declared

Abstract. Spittlebugs are among the main insect pests of forage grasses in Brazil. In February 2021, a spittlebug infestation was verified in Xaraés palisadegrass (*Brachiaria brizantha* cv. Xaraés) in the municipality of Senador Guiomard, Acre state, Brazil. The specimens were captured with an entomological sweep net and identified as *Notozulia entreriana* (Berg) and *Mahanarva spectabilis* (Distant) (Hemiptera: Cercopidae). *Notozulia entreriana* is frequently captured in studies with spittlebugs in Acre state, though this is the first record of *M. spectabilis* in the state. This new record expands the species known geographical distribution in Brazil and the number of species of *Mahanarva* occurring in Acre state.

Keywords: Amazon; Auchenorrhyncha; Forage crops; Poaceae; Sugarcane froghoppers.

Livestock rearing, defined as the breeding and raising of animals for economic purposes or sustenance, is an important economic activity worldwide (SOUZA SOBRINHO *et al.* 2011). In Acre state, Brazil, beef cattle rearing is one of the main activities among small, medium, and large producers (VALENTIM 2006), representing the largest primary industry in the state in terms of economic impact (URBANSKI 2016).

Pastureland, both cultivated and natural, is the main source of feed for cattle herds, especially in Brazilian cattle operations. Cattle pastures, however, are vulnerable to insect infestations, outbreaks of which can cause severe economic impacts (TEIXEIRA & COSTA 2016).

In Brazil, spittlebugs (Hemiptera: Cercopidae) are considered pasture pests of significant concern, causing declines in the production and quality of pasture grasses (VALÉRIO 2009; TEIXEIRA & COSTA 2016), which can cause degradation of the pasture. The damage caused to plants is due to the feeding behavior of nymphs and adults, which reduces the nutrients available for plant growth, while toxins present in the saliva of adults enter plant tissues and cause yellowing, drying, and death in grass plants (VALÉRIO 2009). The diversity of spittlebug species increases the complexity of the problem, with individual species associated with various pasture grasses, which occur in different ecological conditions and management systems (VALÉRIO 2009; TOLOTTI *et al.* 2018).

Currently, 25 species of cercopids have been recorded in Brazilian pasturelands, belonging to eight genera (TOLOTTI *et al.* 2018). Of these, eight species belong to *Mahanarva*: *Mahanarva fimbriolata* (Stål), *Mahanarva vittata* (Walker), *Mahanarva liturata* (Le Peletier and Serville), *Mahanarva posticata* (Stål), *Mahanarva rubicunda* (Walker), *Mahanarva mura* (China and Myers), *Mahanarva tristis* (Fabricius), and *Mahanarva spectabilis* (Distant) (TOLOTTI *et al.* 2018). It should be noted that, although *Mahanarva rubrovenata* Paladini

and Carvalho, *Mahanarva webbi* Paladini and Carvalho, and *Mahanarva dablionsignata* Paladini and Carvalho (Hemiptera: Cercopidae) (PALADINI & CARVALHO 2007) do occur in Brazil, the pasture grasses with which they co-occur in the country have not yet been ascertained. Nonetheless, spittlebugs belonging to the genus have been reported to cause severe damage in grasses in South and Central America (FEWKES *et al.* 1969; VALÉRIO 2008).

In the state of Acre, six species of spittlebugs have been recorded: *Deois flavopicta* (Stål), *Deois rubropicta* Sakakibara, *Deois incompleta* (Walker), *Notozulia entreriana* (Berg), *M. tristis*, and *M. mura* (TOLOTTI *et al.* 2018; SANTOS & SUTIL 2021). The aim of this study, then, is to document the first recorded occurrence of *M. spectabilis* associated with pastureland in Acre state.

In February of 2021, a field visit was carried out in a pasture of Xaraés palisadegrass [*Brachiaria brizantha* (Hochst. ex A. Rich.) cv. Xaraés, Poaceae], which had been attacked by spittlebugs. The pasture was located in the Fazenda Riachuelo in the municipality of Senador Guiomard, Acre state (10°14'36.3" S; 67°30'12.5" W).

A collection of spittlebugs using an entomological sweep net was carried out over an area of approximately 0.5 ha. The insects were stored in a plastic bag containing diethyl ether-soaked cotton. The material was transported to the Embrapa Acre Entomological Laboratory, municipality of Rio Branco, Acre, screened under a stereoscopic microscope and preserved in a glass jar containing 70% ethanol. The insects were subsequently identified following CARVALHO & WEBB (2005).

The species *N. entreriana* and *M. spectabilis* (Figure 1) were captured in Xaraés palisadegrass, of which five males (specimen numbers: MCTP 66984 // MCTP 66985 // MCTP 66986 // MCTP 66987 // MCTP 66988) and five females

(specimen numbers: MCTP 66989 // MCTP 66990 // MCTP 66991 // MCTP 66992 // MCTP 66993) belonged to *M. spectabilis*. The specimens were deposited in the collection of the Museum of Science and Technology of the Pontifícia Universidade Católica do Rio Grande do Sul, municipality of Porto Alegre, Rio Grande do Sul state, Brazil.

Meanwhile, *N. entreriana* is commonly found in cercopid studies carried out in Acre state (FAZOLIN et al. 2009; 2012; SUTIL et al. 2020; SANTOS & SUTIL 2021). Its presence in the Amazon has also been recorded in the states of Rondônia and Pará (TOLOTTI et al. 2018). Currently, it has been associated with host plants belonging to the following genera: *Axonopus*, *Brachiaria*, *Cenchrus*, *Chloris*, *Chrysopogon*, *Cynodon*, *Digitaria*, *Eriochloa*, *Hemarthria*, *Hyparrhenia*, *Melinis*, *Panicum*, *Paspalum*, *Pennisetum*, *Rhynchospora*, *Setaria*, *Tripsacum*, and *Zoysia* (TOLOTTI et al. 2018).

In Brazil, *M. spectabilis*, locally known as *cigarrinha-vermelha-da-cana* (literally, "red cane spittlebug"), has already been recorded on the following grass species: *B. brizantha*, *Brachiaria decumbens* Stapf, and *Pennisetum purpureum* Schum (AUAD & CARVALHO 2009; TOLLOTTI et al. 2018), as well as on sugarcane (*Saccharum officinarum* L., Poaceae) (ALVES & CARVALHO 2014).

The species measures around 12 mm in length, is generally reddish-brown to ochre, with a reddish-brown or ochre pronotum and scutellum, tegmina ochre yellow with black lengthwise stripes, though different wing patterns can occur, with colors ranging from reddish to black tegmina (TOLOTTI et al. 2018) (Figure 1). Records of *M. spectabilis* exist from the Federal District and the states of Goiás, Mato Grosso,

Maranhão, Mato Grosso do Sul, Minas Gerais, Pará, Paraná, Rondônia, São Paulo, and Tocantins (TOLOTTI et al. 2018). The species has been identified as a pest that limits the production of forage grasses in Brazil (AUAD et al. 2007).

According to RESENDE et al. (2013), the presence of eight adults of *M. spectabilis* over six days in clumps of *Brachiaria ruziziensis* Germain and Everard with an average of 80 tillers is enough to cause drops in chlorophyll and reduce plant function by up to 60%, confirming the insect's significant adverse potential in pasturelands.

In addition to *M. spectabilis*, two other congeneric species occur in Acre state, namely *M. tristis*, recorded in sugarcane, and *B. brizantha* (FAZOLIN et al. 2009) and *M. mura*, also in Xaraés palisadegrass (TOLOTTI et al. 2018; SUTIL et al. 2020; SANTOS & SUTIL 2021).

When the field visit was carried out, visual observation and the number of specimens captured allowed confirmation of the fact that the population of *M. spectabilis* was greater than *N. entreriana* in the infested area. In addition, it was observed that the infestation was spread throughout the farm's pastureland and the damage to grass tussocks was easily visible. Xaraés palisadegrass is currently the most widely planted forage grass in Acre, mostly due to its resistance to brizantha grass death syndrome (ANDRADE & ASSIS 2008). Therefore, there is an urgent need to develop a monitoring plan and chemical or biological control strategies against *M. spectabilis*, given the susceptibility of Xaraés palisadegrass to the species.

This record from the municipality of Senador Guimard aids



Figure 1. Adults of *Mahanarva spectabilis* (Hemiptera: Cercopidae) in copula. (Photo: Gervásio Silva Carvalho).

in the understanding of cercopid species present in Acre state, as well as the geographical distribution of *M. spectabilis* in Brazil. Furthermore, it confirms the first record of the species in this state.

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