

First report of *Panstrongylus megistus* (Hemiptera, Reduviidae, Triatominae) in the State of Acre and Rondônia, Amazon, Brazil

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ABSTRACT

Introduction: This article reports, for the first time, the occurrence of *Panstrongylus megistus* in the Brazilian Western Amazon.

Methods: Specimens of *P. megistus* were collected in the cities of Rio Branco, Acre and Extrema, Rondônia.

Results: The number of triatomine species in the State of Acre increased from eight to nine and in Rondônia from seven to eight. This was also the first report of *P. megistus* in the Brazilian Western Amazon.

Conclusion: The occurrence of *P. megistus* in the Western Amazon evidences an epidemiological alert, since it is an important vector of *T. cruzi*.

1. Introduction

American Trypanosomiasis or Chagas disease is a neglected tropical disease that affects six to eight million people worldwide and is considered endemic in Mexico, as well as Central and South America, but it has been also spreading in non-endemic countries through the migration of people affected by the disease (Coura and Viñas, 2010).

The vectors of Chagas disease belong to the Reduviidae family and subfamily Triatominae, which contains more than 153 species, grouped into 18 genera, some of which are intimately adapted to human dwellings, which potentiates the vector transmission of *Trypanosoma cruzi*, the etiological agent of this disease (Mendonça et al., 2016; Souza et al., 2016; Oliveira and Alevi, 2017).

In the Amazon, there are 31 recognized triatomine species grouped into nine genera, and in the Brazilian Amazon, there are at least 22 wild triatomine species belonging to eight described genera, more than 10 related of which are to *Trypanosoma cruzi* infection (Souza et al., 2016;

Meneguetti et al., 2016).

In the states of Acre and Rondônia, five species of triatomines are described: *Rhodnius montenegrensis* (Rosa et al., 2012; Meneguetti et al., 2015), *Rhodnius robustus* (Barata et al., 1988; Massaro et al., 2008), *Rhodnius pictipes* (Barata et al., 1988; Massaro et al., 2008), *Panstrongylus geniculatus* (Massaro et al., 2008; Gurgel-Gonçalves et al., 2012) and *Eratyrus mucronatus* (Meneguetti et al., 2011; Obara et al., 2013), while *Rhodnius stali* (Meneguetti et al., 2016), *Rhodnius neglectus* (Ramos et al., 2018a) and *Triatoma sordida* (Ramos et al., 2018b) are only found in Acre and *Rhodnius milesi* (Massaro et al., 2008) and *Panstrongylus lignarius* (Terassini et al., 2017) the state of Rondônia.

The present study reports for the first time the occurrence of the species *Panstrongylus megistus* in the States of Acre and Rondônia, which is also the first report in the Western Amazon.

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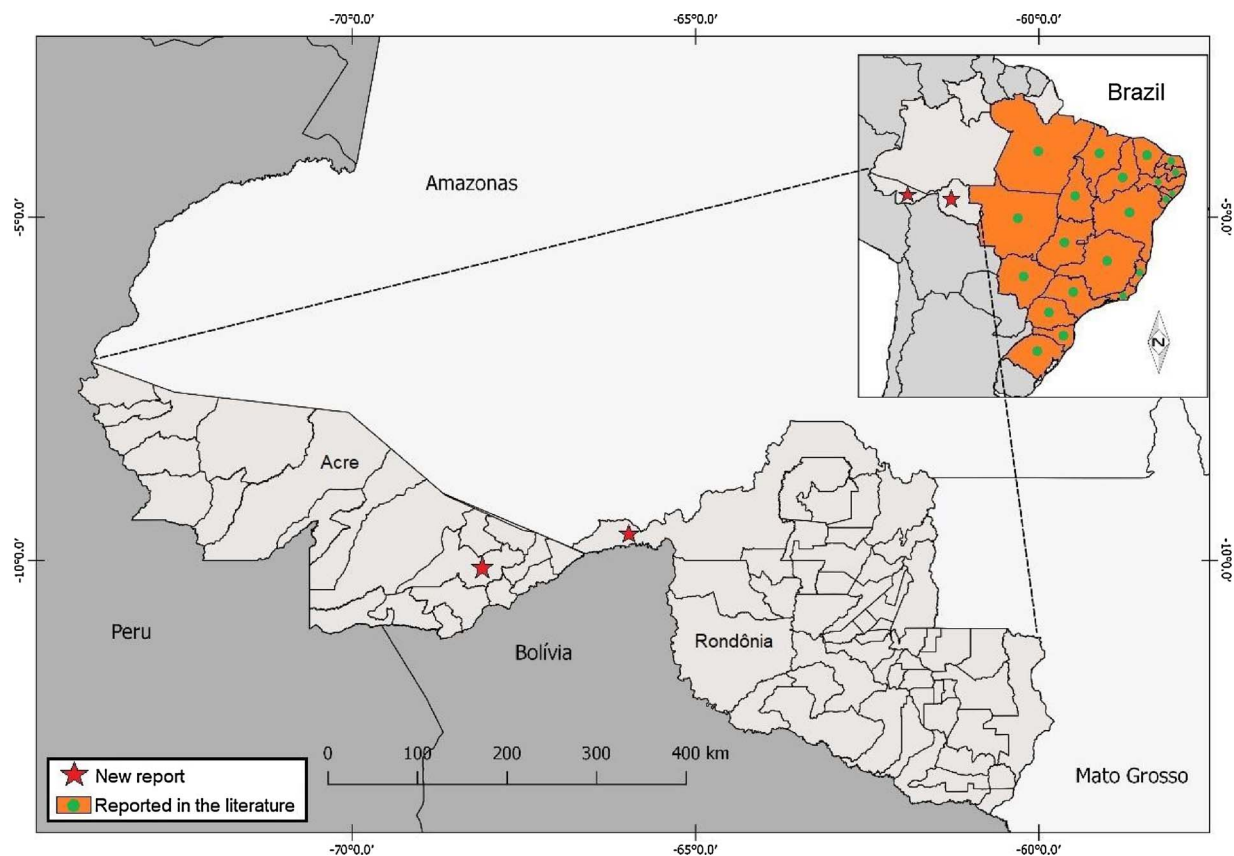


Fig. 1. Distribution of *Panstrongylus megistus* in Brazilian.

2. Materials and methods

Triatomines were found in the municipalities of Rio Branco, Acre (9°58'56"S – 67°52'.41"W) and Porto Velho, Rondônia (Extrema district) (9°46'27"S – 66°21'.09"W), Brazil (Fig. 1). In both municipalities the specimens were collected in residences of peri-urban regions, but without evidence of the occurrence of domiciliation. In Rio Branco, the two specimens collected were sent to the Department of Entomology of the Municipal Health Department and then sent to the Laboratory of Tropical Medicine (LABMEDT) of the Federal University of Acre (UFAC). The only specimen collected in Porto Velho (Extrema district), was also referred to LABMEDT of Ufac.

The initial identification of the species occurred in LABMEDT, considering the morphological characteristics described by Lent and Wygodzinsky (1979), and later referred to the Institute of Biological Sciences of the Faculty of Pharmaceutical Sciences, University Paulista Júlio de Mesquita Filho (UNESP), in Araraquara, São Paulo, Brazil, where the species was confirmed. No analysis of trypanosomatid infection was performed, since at the time of delivery the specimens were already completely dehydrated.

3. Results and discussion

The three triatomines collected, two in the municipality of Rio Branco Acre and one in Porto Velho (Extrema district), Rondônia, were identified as *Panstrongylus megistus*.

Panstrongylus megistus (Fig. 2) described for the following Brazilian states: Alagoas, Bahia, Ceará, Federal District, Espírito Santo, Goiás, Maranhão, Minas Gerais, Mato Grosso do Sul, Mato Grosso, Pará, Paraíba, Pernambuco, Piauí, Paraná, Rio de Janeiro, Rio Grande do Norte, Rio Grande do Sul, Sergipe, São Paulo, Santa Catarina and Tocantins (Gurgel-Gonçalves et al., 2012), which together with the states of Acre and Rondônia represent 24 Brazilian states where this species

occurs.

Panstrongylus megistus is presently the most important Chagas disease vector in Brazil, due to its wide geographic distribution, high capacity to invade and colonize households, and high levels of *T. cruzi* infection (Gurgel-Gonçalves et al., 2012). Humans, birds, dogs, cats, marsupials, rodents, cattle, goats, pigs, among others, have already been found infected (Carcavallo et al., 1997).

The presence of another species of triatomines in the state of Acre and Rondônia has increased the total number of species from eight to nine in Acre and seven to eight in Rondônia.

The occurrence of *Panstrongylus megistus* in the Western Amazon calls for an epidemiological alert, since it is an important vector species of *T. cruzi* to humans, due to its anthropophilia, and for being mainly found in surroundings and homes, where it has easy access to shelter and an abundant source of food, thus increasing the possibility of transmission of Chagas disease in the states of Acre and Rondônia.

Ethical considerations

The specimens were collected with permission from the Brazilian Institute of Environment and Renewable Natural Resources [Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (IBAMA)], permanent license no. 52260-1.

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Fig. 2. Dorsal views of *Panstrongylus megistus* individuals found in the municipality of Rio Branco, State of Acre and Porto Velho, Rondônia (Extrema district), Brazil.

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