

The first record of *Lutzomyia longipalpis* (Lutz & Neiva, 1912) (Diptera: Psychodidae: Phlebotominae) in the State of Paraná, Brazil

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ABSTRACT

Introduction: We report the first find of *Lutzomyia longipalpis* in the State of Paraná, Brazil. **Methods:** The specimens were captured in the urban area of the municipality of Foz do Iguaçu, with Falcão light traps, in domiciliary and peridomestic areas of 61 properties, on two consecutive nights from 18:00 to 06:00hs in March 2012. **Results:** We captured 40 specimens of *Lu. longipalpis* and 54 specimens of other sandfly species. **Conclusions:** This find expands knowledge of the geographical distribution of this sandfly in Brazil.

Keywords: *Lutzomyia longipalpis*. Sandfly. Paraná.

Lutzomyia longipalpis (Lutz & Neiva) is the main vector of *Leishmania chagasi* (Cunha & Chagas), the etiological agent of visceral leishmaniasis (VL) in the New World¹. This severe chronic disease is widely distributed in Latin America, especially in Brazil, where it is endemic in large urban centers of the North, Northeast, Southeast and Midwest². In southern Brazil, *Lutzomyia longipalpis* was first recorded in areas of occurrence of human and canine VL, in the City of São Borja, State of Rio Grande do Sul³. In this state, the canine disease had been diagnosed earlier, in Santa Maria City⁴. In the State of Paraná, human cases have been recorded in the rural area of Altônia municipality^{5,6}.

In Argentina, Uruguay and Paraguay, *Lu. longipalpis* has been reported in areas that coincide with the occurrence of VL⁷⁻⁹. In Argentina, where more studies on sandflies have been carried out, the geographical distribution of *Lu. longipalpis* includes several municipalities in the provinces of Corrientes, Entre Rios, Formosa and Misiones¹⁰⁻¹². In Misiones, *Lu. longipalpis* was found in the urban area of Puerto Iguazú, on the border with the City of Foz do Iguaçu, Paraná¹¹.

In 2004 and 2005, Silva et al, 2008¹³ did not detect *Lu. longipalpis* in 37 municipalities of Paraná, in areas vulnerable to the occurrence of VL. The species was also not found in over 39 other municipalities of this state, surveyed from 2006 through 2011 (DR Santos: unpublished data). In these two periods, sampling performed in the rural area of Foz do Iguaçu, in the localities Porto Franco, Cataratas late Club (on the border with Paraguay), Porto Meira, Parque Três Fronteiras and Pedreira São João (border with Argentina), resulted in the capture of the species *Nyssomyia whitmani* (Antunes & Coutinho), *Nyssomyia neivai* (Pinto), *Micropygomyia quinquefer* (Dyar) and *Psathyromyia shannoni* (Dyar). The present contribution reports the first find of *Lu. longipalpis* in the State of Paraná, and updates information on the sandfly fauna in the urban area of Foz do Iguaçu.

The municipality of Foz do Iguaçu (25°32'45"S and 54°35'07"W) is located in western Paraná on the border of Brazil with Paraguay and Argentina (Figure 1) and has an area of 617.71km² and an estimated population of 256,081 inhabitants. The climate is humid subtropical, with hot summers, infrequent frosts, and rain in all months of the year. The maximum mean annual temperature is around 33°C and the minimum can fall below freezing. Annual rainfall varies around 1,800mm. The terrain consists of gently rolling slopes with deep clayey soils of eruptive origin, rich in organic matter. The vegetation in the National Park is subtropical, with lowland rainforest on the banks of the Paraná and Iguaçu rivers¹⁴.

The entomological survey was conducted from 19 to 29 March 2012, in 61 residential buildings of six urban localities of Foz do Iguaçu (*Vila Carimã, Jardim Cataratas, Ponte Internacional Tancredo Neves, Jardim das Flores, Profilurb and Jardim Santa Rosa*), which are geographically recognized by the National Dengue Control Program (Figure 1). In the first five locations (on the border with Argentina and Paraguay), 60 Falcão light traps were installed. In the *Jardim Santa Rosa*, about 10km from the other locations, a trap was installed to assess the degree of dispersal of *Lu. longipalpis* in relation to the border among the three countries, since this sandfly was previously recorded on the other side of the Iguazú River in the City of Puerto Iguazú, Argentina¹¹.

The sandflies were caught on properties characterized by the presence of dogs, chickens, pigs and other domestic animals, vegetation, moisture and organic matter accumulation in the soil of the peridomestic environment, which meet the sandflies' requirements for food (blood meals) and breeding. Traps were placed in porches of homes, domestic animal shelters (kennel, chicken coop and pigsty) and gardens, on two consecutive nights, from 18:00 to 06:00hs. After sorting, the sandflies were prepared, mounted and identified in the *Laboratório of the Núcleo de Entomologia of Maringá, Paraná*, where part of the specimens of *Lu. longipalpis* are deposited in the entomological collection. Species were identified according to Galati, 2003¹⁵ and confirmed by the *Centro de Referência Nacional e Internacional para Flebotomíneos of the Laboratório de Leishmanioses, Centro de Pesquisas René Rachou, Fundação Oswaldo Cruz, Minas Gerais*.

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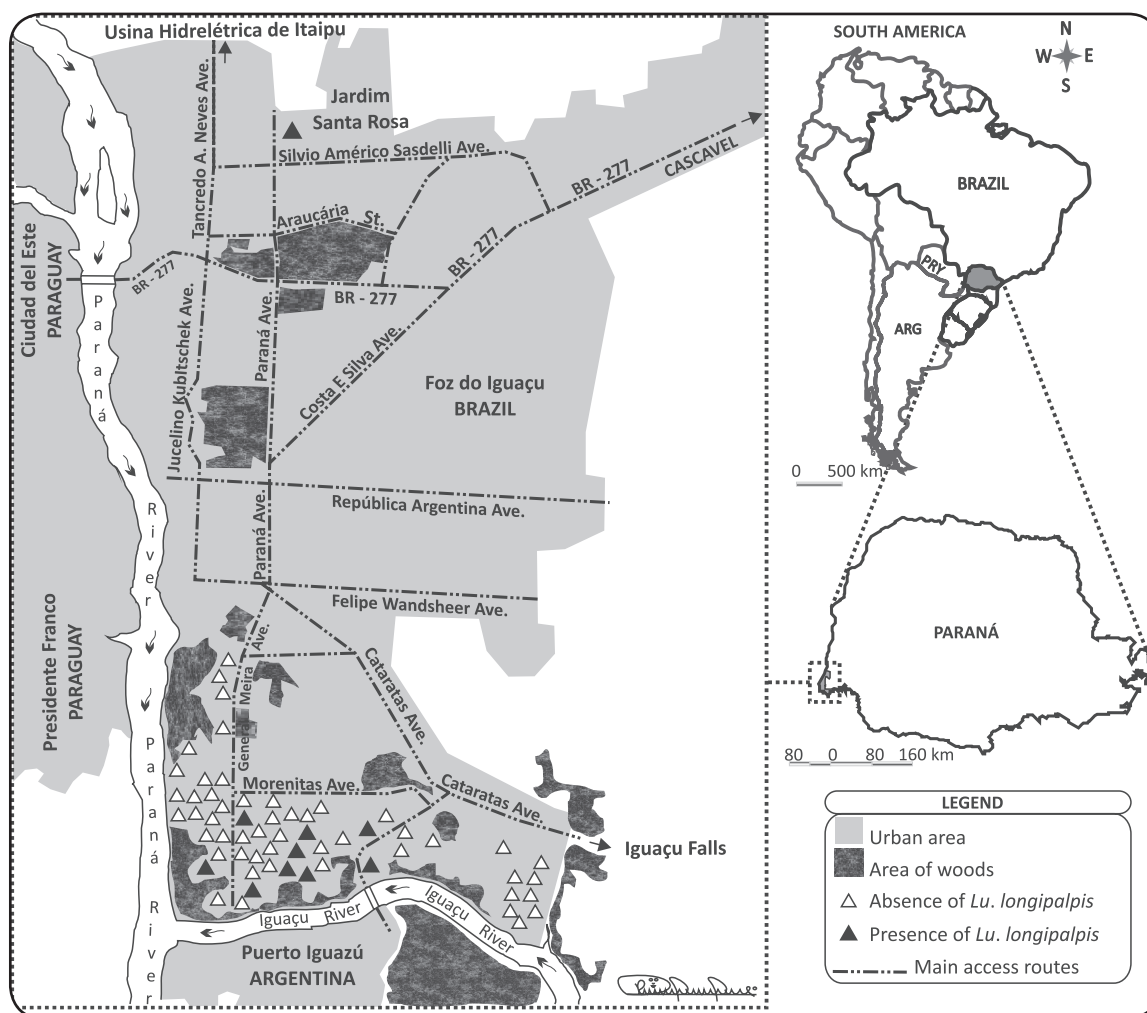


FIGURE 1 - Locations of phlebotomine collections in the urban area of Foz do Iguaçu, State of Paraná, Brazil.

We collected 40 specimens of *Lu. longipalpis* (30 males and 10 females), including 18 in kennels, 11 in chicken coops, six in residences, three in pigsties and two in gardens, distributed in ten buildings in all the localities except Vila Carimã. Together with *Lu. longipalpis*, 54 other phlebotomines were collected, representing the species *Ny. whitmani*, *Mi. quinquefer*, *Brumptomyia brumpti* (Larrouse), *Migonemyia migonei* (França), *Pintomyia pessoai* (Coutinho & Barretto), *Martinsmyia alphabetica* (Fonseca) and *Evandromyia cortezzii* (Brèthes), some of which have the potential to transmit cutaneous leishmaniasis agent.

The record of *Lutzomyia longipalpis* in Paraná contributes to knowledge of the geographical distribution of vectors of *Leishmania chagasi* in Brazil, suggesting the possibility that this species is dispersed throughout the urban area of Foz do Iguaçu. Although so far, no autochthonous cases of VL have been reported in humans and dogs in this city, we recommend the immediate implementation of entomological and epidemiological surveillance, as recommended by the Ministry of Health, 2006².

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABSTRACT IN PORTUGUESE

O primeiro registro de *Lutzomyia longipalpis* (Lutz & Neiva, 1912) (Diptera: Psychodidae), no Estado do Paraná, Brasil

Introdução: Relata-se pela primeira vez a ocorrência de *Lutzomyia longipalpis*, no Estado do Paraná, Brasil. **Métodos:** Os exemplares da espécie foram capturados na área urbana do município de Foz do Iguaçu, com armadilhas luminosas do tipo Falcão, no domicílio e peridomicílio de 61 imóveis residenciais, em duas noites consecutivas, das 18 às 6 horas, em março de 2012. **Resultados:** Foram capturados 40 exemplares de *Lu. longipalpis*, juntamente com 54 flebotomíneos de

outras espécies. **Conclusões:** Este fato contribui para o conhecimento da área de distribuição geográfica do vetor de *Leishmania chagasi*, no Brasil.

Palavras-chaves: *Lutzomyia longipalpis*.
Flebotomíneos. Paraná.

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