

Lutzomyia longipalpis in Uruguay: the first report and the potential of visceral leishmaniasis transmission

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Phlebotomine captures were performed in February 2010 in Salto (Salto department) and Bella Unión-Cuareim (Artigas department), Uruguay. Bella Unión is located across the Paraná River from Monte Caseros, Argentina, where a focus of canine visceral leishmaniasis (VL) was reported in 2009. No VL cases have ever been recorded in Uruguay and the last reported capture of Phlebotominae was in 1932 (Lutzomyia cortelezzii and Lutzomyia gaminarai). Light traps were placed in peridomestic environments, and Lutzomyia longipalpis, the main vector of visceral leishmaniasis, was found in Salto and Bella Unión. This is a first report of an area of potential VL transmission in Uruguay. Active and coordinated surveillance is required immediately the Uruguay-Argentina-Brazil border area.

Key words: *Lutzomyia longipalpis* - visceral leishmaniasis - Uruguay

Phlebotomine sand flies in Uruguay were reported twice by Cordero before 1930. *Lutzomyia gaminarai* was found in the department of Salto, Salto department (3 males, 2 females) and Tacuarembó (2 males, 3 females); the former were associated with a stone fence far from human dwellings and the latter were captured 30 m from a house. *Lutzomyia cortelezzii* was captured in the area surrounding Montevideo (5 males, 21 females) in Prado Park, close to the Botanical Garden (Cordero et al. 1928, 1930). In addition, cases of American cutaneous leishmaniasis were diagnosed between 1917-1922 (Shattuck 1936). However, there are neither reports of clinical cases of leishmaniasis nor phlebotomine capture between 1932-2009, when a canine case of leishmaniasis with cutaneous involvement occurred in the Canelones department (Pacheco da Silva et al. 2009), although the parasite was not characterized. In addition, vertical transmission of an imported origin could not be ruled out.

Lutzomyia longipalpis, the main vector of visceral leishmaniasis (VL), was found in Argentina on the border with Paraguay in 2004. The first autochthonous human case was diagnosed in 2006, and canine VL together with *Lu. longipalpis* was reported in Monte Caseros, which is across the Uruguay River from Bella Unión-Cuareim, Artigas department, in January 2009 (Salomón & Orellano 2005, Salomón et al. 2008, 2009). Therefore, phlebotomine sandfly captures were performed during 2010 in the most vulnerable cities of Uruguay to assess the presence of *Lu. longipalpis* and the risk of VL transmission.

Phlebotomine captures were performed with CDC mini light traps overnight in Salto (1 night) and Bella Unión-Cuareim (2 nights). Thirty-two sites (Salto 10, Bella Unión 22) were sampled in February 2010; the capture sites were selected within peridomestic habitats with close vegetation, animal dwellings and/or proximity to the border with Argentina. The Phlebotominae were cleared, mounted and identified based on published data (Salomón et al. 2008), with special attention to the similarity between *Lu. longipalpis* and *Lu. gaminarai* (Martins et al. 1961, Brandão-Filho et al. 2009), which was reported in Salto in 1928 (Cordero et al. 1928).

Two Phlebotominae were found, both males of *Lu. longipalpis*, one in the cage of black howler monkeys (*Alouatta caraya*) in the Zoo of Salto (31°23'49.9"S 57°57'50.4"W) and the other in a peridomestic chicken pen in the backyard of an urban house in Bella Unión (30°15'22.7"S 57°36'11.5"W). This is the first report of a competent vector of VL in Uruguay close to a current VL focus and is the first report in the country of a phlebotomine in the last 80 years.

The speed and magnitude of the dispersion of *Lu. longipalpis* to the south has already been reported for Argentina, with the capture of this vector in the last two years in urban environments without previous records of *Lu. longipalpis* (Salomón et al. 2009). The individual found in Salto represents the southernmost known report of *Lu. longipalpis* to date. However, the actual risk of VL transmission in this populated city requires further study, as this single capture was performed in the Zoo, which is located in the "green" gallery that crosses the city. In Bella Unión, on the other hand, the captures were performed in the city. Bella Unión is located on the Brazil-Paraguay-Argentina frontier and is across the river from Monte Caseros, the site of a VL focus in Argentina. Although there is no bridge between Bella Unión and Monte Caseros and the border is crossed only by boats, the river cannot be considered a geographical barrier and the two foci should be considered contiguous. Related

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to the risk associated with the Brazilian border, in the state of Rio Grande do Sul, there have been a few dogs diagnosed with canine VL until 2008-2009 and some of these cases were imported (Pocai et al. 1998, Marcondes et al. 2003, Krauspenhar et al. 2007). In 2008-2009, three human VL cases and 87 dogs with canine VL were reported in the city of São Borja along with presence of *Lu. longipalpis*; other reported cases included three dogs from Porto Xavier, one dog from Santa Maria and other from Uruguaiana (SESRS 2009, Souza et al. 2009).

In conclusion, there is a potential risk of VL transmission in Uruguay due to the following: (i) the presence of *Lu. longipalpis* in Salto and Bella Unión close to populated areas, (ii) the reports of VL from Argentina and southern Brazil and (iii) the fluent movement of individuals and dogs along the border. Thus, an active at least bi-national surveillance system for both cutaneous and VL is required immediately in the area to improve the local detection capacities to diagnose both human and canine leishmaniasis and to evaluate the current distribution of *Lu. longipalpis*. The transit of dogs across the border should be controlled as in any other dog-related zoonotic scenario. Finally, with the aim of evaluating changes in the space-time distribution of the risk, regular monitoring of Phlebotominae should be performed at strategic places.

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