

# First report of *Lutzomyia* (*Nyssomyia*) *yuilli yuilli* Young & Porter, 1972 (Diptera: Psychodidae) in Roraima state, Brazil

Primeiro registro de *Lutzomyia* (*Nyssomyia*) *yuilli yuilli* Young & Porter, 1972 (Diptera: Psychodidae) no Estado de Roraima, Brasil

Primer registro de *Lutzomyia* (*Nyssomyia*) *yuilli yuilli* Young & Porter, 1972 (Díptera: Psychodidae) en el Estado de Roraima, Brasil

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## ABSTRACT

The first report of *Lutzomyia* (*Nyssomyia*) *yuilli yuilli* Young & Porter, 1972 (Diptera: Psychodidae) in Roraima State, Brazil is presented. The specimens were captured in the Auaris indigenous community, on the border with Venezuela, with CDC light traps set up in henhouses between 18 h and 6 h. *L. yuilli yuilli* is the only vector of *Leishmania* sp. currently known in Auaris and may be involved in the transmission of *Leishmania* sp. to humans in the area.

**Keywords:** Psychodidae; Insect Vectors; Epidemiological Surveillance; Indigenous Population; *Leishmania*.

Phlebotomine sand flies of the genus *Lutzomyia* França, 1924 are medically important because several species are vectors of parasites of the genus *Leishmania* Ross, 1903, the etiological agents of human leishmaniasis in the New World<sup>1</sup>.

Although knowledge of phlebotomines is important for planning and developing the epidemiological surveillance and control of leishmaniasis, studies on the geographical distribution and identification of *Leishmania* vectors in Roraima State are scarce, especially in indigenous areas, with the exception of the studies by Guerra et al<sup>2</sup> on the

presence of *Lutzomyia longipalpis* Lutz & Neiva, 1912 in the Raposa Serra do Sol Indian reservation.

The region of Auaris, which is covered by a dense tropical forest, is located in the northernmost tip of Brazil, in the municipality of Amajari, Roraima State (4°00'10" N and 64°29'21" W). Auaris is situated within the Parima and Pacaraima mountain ranges, which delimit the Orinoco and Amazon basins and, consequently, define the border between Brazil and Venezuela<sup>3</sup>. Access to the area is limited, and no information on *Leishmania* and phlebotomine species is available for the region.

According to the *Fundação Nacional de Saúde* (Brazil's National Health Foundation), Section Roraima (FUNASA/RR), Auaris is an endemic region for American tegumentary leishmaniasis (ATL) and has a population of 1,953 Yanomami Indians living in 30 communities.

Sand flies were captured by FUNASA/RR technicians in March 2009, with CDC light traps set up in peridomestic henhouses for five consecutive days, from 18 h to 6 h of the following day.

The samples collected were identified according to the classification proposed by Young and Duncan<sup>4</sup> and were deposited in the invertebrate collection of the Museu Integrado de Roraima (MIRR).

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A total of 23 *Lutzomyia* specimens were captured, including three females of *L. yuilli yuilli*, an anthropophilic species of the subgenus *Nyssomyia*, which hosts several known *Leishmania* spp. vectors. The remaining specimens belonged to *L. aragaoi* Costa Lima, 1932, *L. dendrophyla* Mangabeira, 1942 and *L. rorotaensis* Floch & Abonnenc, 1944.

*L. yuilli yuilli* is a species of peridomestic habits, with known distribution to Brazil, Bolivia, Colombia, Ecuador, Peru and Venezuela<sup>5,6,4</sup>. It is found in tree trunks, tabular roots and canopies, in areas surrounding forests and outbuildings with domestic animals<sup>7</sup>.

In Colombia, *L. yuilli yuilli* is of known medical importance as a vector of *Leishmania* and has been found naturally infected with *Leishmania* (*Viannia*) *panamensis* Lainson & Shaw, 1972<sup>8</sup>.

In Brazil, records in the states of Amapá, Amazonas, Bahia, Espírito Santo, Mato Grosso, Pará, Rondônia and São Paulo<sup>9,10,4</sup> show that *L. yuilli yuilli* has been frequently observed biting humans, both peridomestically and intradomestically<sup>11</sup>, and has previously been found naturally infected with unidentified flagellates similar to *Leishmania*<sup>12</sup>.

In Bahia State, specimens of *L. yuilli yuilli* from the region of Três Braços, where the species is common, were experimentally infected by *Leishmania* (*Leishmania*) *foratinni* Yoshida et al, 1993, a parasite also found in the states of São Paulo, Bahia and Espírito Santo<sup>13</sup>. Lainson and Shaw<sup>1</sup> warn that even though there is no record of human infection with *L. (L.) foratinni*, *L. yuilli yuilli* occasionally feeds on humans; therefore, if this species is the actual vector of *L. foratinni* among animal reservoirs, then human infection may also occur.

Given the lack of knowledge about *Leishmania* and phlebotomine species involved in the transmission of ATL in Auaris and that *L. yuilli yuilli* is the only vector species currently known in this indigenous area, this report represents an important finding. Moreover, additional studies are required to determine the natural infection rates of *L. yuilli yuilli* by *Leishmania* spp. and the possible involvement of this sand fly species in the epidemiology of ATL in the region.

This report of *L. yuilli yuilli* in Auaris extends the distribution range of the species and increases the number of *Lutzomyia* species recorded in Roraima State to 79.



## Primeiro registro de *Lutzomyia* (*Nyssomyia*) *yuilli yuilli* Young & Porter, 1972 (Diptera: Psychodidae) no Estado de Roraima, Brasil

### RESUMO

Registra-se pela primeira vez o encontro de *Lutzomyia* (*Nyssomyia*) *yuilli yuilli* Young & Porter, 1972 (Diptera: Psychodidae) no Estado de Roraima, Brasil. Os espécimes foram capturados na área indígena de Auaris, na fronteira com a Venezuela, usando-se armadilhas luminosas tipo CDC instaladas em galinheiros, entre 18 h e 6 h. *L. yuilli yuilli* é a única espécie vetora de *Leishmania* sp. conhecida até o momento em Auaris e pode estar envolvida na transmissão de *Leishmania* sp. a humanos naquela região.

**Palavras-chave:** Psychodidae; Insetos Vetores; Vigilância Epidemiológica; População Indígena; *Leishmania*.

## Primer registro de *Lutzomyia* (*Nyssomyia*) *yuilli yuilli* Young & Porter, 1972 (Diptera: Psychodidae) en el Estado de Roraima, Brasil

### RESUMEN

Se registra por vez primera el hallazgo de *Lutzomyia* (*Nyssomyia*) *yuilli yuilli* Young & Porter, 1972 (Diptera: Psychodidae) en el Estado de Roraima, Brasil. Los especímenes fueron capturados en el área indígena de Auaris, en la frontera con Venezuela, siendo usadas trampas luminosas tipo CDC instaladas en gallineros, entre 18 h y 6 h. *L. yuilli yuilli* es la única especie vector de *Leishmania* sp conocida hasta el momento en Auaris y puede estar involucrada en la transmisión de *Leishmania* sp a humanos en dicha región.

**Palabras claves:** Psychodidae; Insectos Vectores; Vigilancia Epidemiológica; Población Indígena; *Leishmania*.

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