

SCIENTIFIC NOTE

Phlebotomine Sand Flies (Diptera: Psychodidae) of the Province of Chaco, Argentina

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ABSTRACT - The phlebotomine sandflies of the province of Chaco, Argentina, are poorly known, with reports from more than 40 years or captures related with outbreaks of leishmaniasis. In here, *Mycropygomyia peresi* (Mangabeira) is reported for the first time in Argentina, extending the known distribution of *Migonemyia migonei* (França), *Evandromyia sallesi* (Galvão & Coutinho), *Mycropygomyia quinquefer* (Dyar), *Brumptomyia brumpti* (Larousse) y *Nemopalpus spp* to the province of Chaco. *Mg. migonei*, together with *Nyssomyia neivai* (Pinto), *Evandromyia cortezezzii* (Brèthes), and *Psathyromyia shannoni* (Dyar) also captured in Chaco, were incriminated as vectors of *Leishmania* in Argentina.

KEY WORDS: Leishmaniasis, *Migonemyia migonei*, *Evandromyia sallesi*, *Mycropygomyia quinquefer*, *Mycropygomyia peresi*

American cutaneous leishmaniasis (ACL) was first recorded in Argentina 1916-1917. Current epidemic outbreaks of ACL have taken place in nine northern Argentinean provinces, and extended from the northern border through the Yungas, Chaco and Paranaense biological regions (Salomón *et al* 2008a). In 2006 the first VL autochthonous proved case was reported in the country in the Paranaense region, but close to the Chaco (Salomon *et al* 2008b). However, the sand flies of the Chaco province are poorly known, mainly from captures made before the '60s or performed during ACL outbreaks, where *Nyssomyia neivai* (Pinto), *Evandromyia cortezezzii* (Brèthes), *Psathyromyia shannoni* (Dyar), and *Sciopemyia sordellii* (Shannoni & Del Pont) were reported (Bejarano 1959, Salomon *et al* 2002, 2005).

The Chaco province of Argentina belongs to the South American bioregion of Chaco. It has a subtropical climate, an average annual temperature of 21.5°C and an annual maximum rainfall of 1,200 mm in the eastern Parana-Paraguay river basin, decreasing to 500 mm p.a. toward the west. The isohyetal 900 mm line divides the Chacoan landscape into two regions: the Eastern (wet) and the Western (dry) districts (Dudiuk & Rosegarten 1997). The Wet Chaco has an Atlantic rainfall regime (peaks in summer and autumn), with savannahs and woods in patches of *Schinopsis balansae*, and *Aspidosperma quebracho-blanco*. The Dry Chaco has a continental rainfall regime (peak in summer),

a dry period up to six months (winter), and a semi-arid landscape with xerophytic woods of *Schinopsis lorentzii*, *A. quebracho-blanco/Prosopis nigra*, *S. lorentzii*, and *Bulnesia sarmientoi*, sparsed between thorn bushes (Cabrera 1971).

The sand fly captures were performed with CDC light traps operating from 19:00h to 7:00h within the secondary forest-peridomestic ecotone, twice a month at the Wet Chaco stations of Margarita Belén (27°10'S; 58°50'W) and Resistencia (27°26'S; 58°54'W), from June 2001 to September 2003, and monthly in the Dry Chaco station Misión Nueva Pompeya (24°55'S, 61°30'W) from October 2006 to September 2007. Additional traps were located inside the human domiciles and hen-houses, in lamb-pens (Misión Nueva Pompeya), and cattle-sheds (Resistencia-November 2004 to October 2006). In all surveyed sites the deforestation and anthropic activity were evident.

Sand flies were preserved in 70% ethanol, mounted according to Forattini (1973) and identified in accordance to Young & Duncan (1994), Andrade Filho *et al* (2003) and Galati (2003a), the genera abbreviations were used as suggested by Marcondes (2007).

A total of 4,226 phlebotomine sand flies belonging to eight species were captured (Table 1). The genera *Brumptomyia* and *Nemopalpus*, and the species *Migonemyia migonei* (França), *Evandromyia sallesi* (Galvão & Coutinho), *Mycropygomyia quinquefer* (Dyar), *Mycropygomyia peresi* (Mangabeira)

Table 1 Sand fly captured by species, biological regions and ecotopes in the province of Chaco, Argentina 2001-2007.

Region	Wet Chaco								Dry Chaco					
	M. Belén		Resistencia						Misión Nueva Pompeya					
County	Forest		Dom		Peri		Ecotone		Dom		Peri		Ecotone	
Ecotope	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Species / sex	M	F	M	F	M	F	M	F	M	F	M	F	M	F
<i>Brumptomyia brumpti</i>	2	5	0	0	3	2	8	6	0	0	0	0	0	0
<i>Evandromyia complex</i> ¹	1	10	0	0	5	9	2	20	7	16	9	25	53	50
<i>Mycropygomyia peresi</i>	0	0	0	0	0	0	0	0	0	3	14	11	8	10
<i>Mycropygomyia quinquefer</i>	0	0	0	0	0	0	0	0	0	0	0	5	6	9
<i>Mygonemyia migonei</i>	4	5	0	0	59	65	60	31	331	93	235	145	424	105
<i>Nemalpalpus</i> spp. (Bruchomyiinae)	0	0	0	0	0	0	3	0	0	0	0	0	0	0
<i>Nyssomyia neivai</i>	101	81	0	2	614	246	687	609	2	0	0	0	0	0
<i>Psathyromyia shannoni</i>	3	7	0	0	2	1	1	11	0	0	0	0	0	0

Dom: Domicile, Peri: Peridomicile

¹*E. cortezezzii/E. sallesi*

were recorded for the first time in this province.

Mygonemyia migonei was found in the Dry an in the Wet Chaco districts, but in the former it was the prevalent species even in the captures of domicile. In Brazil it has been found naturally infected with *L. (V.) braziliensis* (Azevedo et al 1990, Pita Pereira et al 2005) and incriminated in the peridomestic cycle of *Leishmania* transmission (Rangel et al 1986). On the other hand, in the Wet Chaco, the richest in sand fly biodiversity, the prevalent species was *Ny. neivai*, the suspected vector in Argentina

Evandromyia cortezezzii and *Ev. sallesi* belong to the complex *cortezezzii* with indistinguishable females (Galati et al 1989). Distinct males of both species were captured with a similar pattern of distribution by district and ecotope to *Mg. migonei*, although with less individuals. *Evandromyia cortezezzii* was found naturally infected by *Leishmania infantum* in Brazil (Carvalho et al 2008).

Mycropygomyia quinquefer was known to be restricted to the Paranaense region in Argentina (Salomón et al 2008a). We report this species also in the Dry Chaco, associated with peridomicile and forest. *Mycropygomyia quinquefer* is widely distributed in Brazil in forest-peridomestic ecotones (Andrade Filho et al 2001, Brazil et al 2006, Galati et al 2006). *Mycropygomyia peresi* was only captured in the Dry Chaco inside houses and in the forest. This is the first report of this species in Argentina and is its southernmost record. It was formerly described in the northeast of Brazil, and in the north and centre of Brazil thereafter (Dias et al 1986), but usually found in wet areas (Andrade Filho et al 2001, Galati et al 1997, 2003b, 2006).

Brumptomyia brumpti and *Pa. shannoni* were captured only in the Wet Chaco, out of the domicile, consistent with their known peridomestic-forest behaviour.

In conclusion, five new records of phlebotomine sand flies were reported for the Chaco province, Argentina, four in the Dry Chaco (including *Mi. peresi* new for the country), and three in the Wet Chaco. Therefore, nine Pheblotominae species are known in Chaco, although *Sciopemyia sordellii*

reported in Presidencia Roca was not found during this study. In the Dry Chaco the prevalent species was *Mg. migonei*, and in the Wet Chaco *Ny. neivai* followed by *Mg. migonei*, both incriminated as vectors of ACL leishmaniasis.

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