

SHORT COMMUNICATION

Notes on *Rhodnius pallescens*, *Triatoma ryckmani* and four other species of triatomines from Nicaragua

Lent and Wigodzinsky (1979) reported only two domestic species of triatomines [*Triatoma dimidiata* (Latreille 1811) and *Rhodnius prolixus* (Stal 1859)] and one sylvatic [*Panstrongylus geniculatus* (Latreille 1811)] in Nicaragua. The presence in the country of the insect subsequently named *Triatoma dimidiata* was first recorded in 1535 (Oviedo y Valdés, 1944). Neiva (1914) also made reference to Nicaraguan *Tri. dimidiata*, noting that G. C. Champion observed this species in bedrooms in Nicaragua and that F. C. Browne Webber, in Managua, captured an adult male while it was feeding on a man. More recently, this species has been caught in light traps set up in the Volcán Masaya National Park and neighbouring areas, and it appears to be widely distributed in the country (Maes, 2002). *Rhodnius prolixus*, a species that was introduced into Central America (Zeledón, 2004), was first reported in Nicaragua by Alvarez-Montalbán and Gutiérrez (1949). It was not until 1979, however, that the presence of *P. geniculatus* in the country — a single male from El Recreo, Bluefields — was initially recorded (Lent and Wigodzinsky, 1979). Later, Maes (1997, 2002) found that *P. geniculatus* occurred at several places in the departments of Boaco, Zelaya [in the area now known as the *Región Autónoma del Atlántico Norte* (RAAN)] and Rio San Juan.

Maes (1997) makes reference to the finding of an adult *P. rufotuberculatus* (Champion 1899) in a light trap set up at the Bosawas Natural Reserve, in north-eastern Nicaragua (RAAN), and Maes (2002) mentioned collections of three species that represented new records for the

country: one adult *Eratyrus cuspidatus* Stal 1859, found in Rio San Juan; two adult *Triatoma dispar* Lent 1950, from Jinotega; and one adult *Tri. nitida* Usinger 1939, also from Jinotega. Marín (2003) was the first to report the existence of *R. pallescens* Barber 1932 in Nicaragua but gave no details of the sites in which this species was collected. In 2005, during a visit to Villa Alvarez in the municipality of El Almendro, in the southern department of Rio San Juan, several adults and nymphs of *R. pallescens* were found within the fronds of three palm trees (*Attalea butyracea*) (unpubl. obs.).

In more recent collections, six sylvatic species of triatomines — 78 *R. pallescens*, 14 *Tri. ryckmani* Zeledón & Ponce 1972, nine *P. geniculatus*, three *Tri. nitida*, and single specimens of *P. rufotuberculatus* and *E. cuspidatus* — have been collected in Nicaragua (present study). This is the first time that *Tri. ryckmani* has been detected in Nicaragua. The collections formed part of the Central American Initiative (CAI) for the control of American trypanosomiasis, and were an attempt, by the national Ministry of Health, to produce baseline data on the dispersion of *R. prolixus* and *Tri. dimidiata* in the country. All of the *R. pallescens* caught came from 37 sites scattered across the department of Rio San Juan (Tables 1 and 2 and Figure 1) and all were found when 2000 houses were sprayed with insecticide, as part of the CAI, because it was believed that *R. prolixus* was present in the area. No *R. prolixus* were detected in the department, however, and it now seems likely that it was specimens of *R. pallescens* that had previously been mistaken for *R. prolixus*. Like *R. prolixus*, however, *R.*

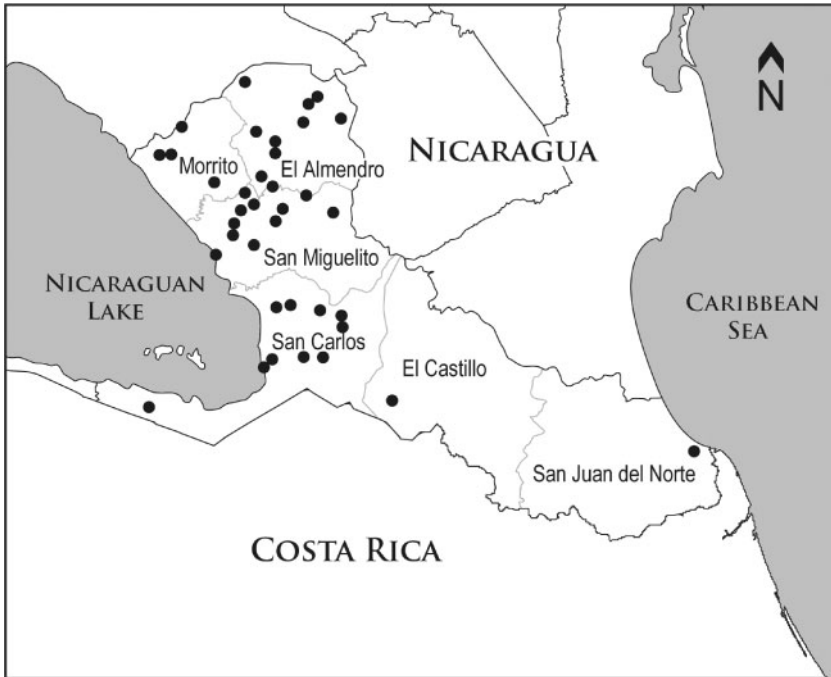


FIG. 1. A sketch map of the municipalities forming the Nicaraguan department of Rio San Juan, showing the sites at which at least one *Rhodnius pallescens* was collected (●).

pallescens can transmit *Trypanosoma cruzi*, and it is an important vector in Panama (Sousa and Johnson, 1973) and perhaps also in Colombia (Jaramillo *et al.*, 2000). Most of the *R. pallescens* collected came from bedrooms (including walls and beds), palm roofs (indoors) and outdoor stacks of fire wood and stored palms.

Table 3 and Figure 2 summarize the collection data for the *Tri. ryckmani*, *Tri. nitida*, *P. geniculatus*, *P. rufotuberculatus* and *E. cuspidatus* caught in the nation-wide survey. Specimens of *Tri. ryckmani* and *P. geniculatus* were found both intradomiciliary (in floors, ceilings and indoor wood piles) and peridomiciliary (in alleys, stacks of tiles

TABLE 1. The municipalities and localities, within the Rio San Juan department, in which at least one specimen of *Rhodnius pallescens* was found

Municipality	Locality
El Castillo	Barrio Laureano Mairena
San Miguelito	El Peñón, El Espavel, El Espavelito, El Ojoche, San Miguel (Sectors 1 and 5), El Camastro, Las Palomas, El Ayote, Barrio Never Oporta
Morrito	Chagüitillo, San Bartolo
San Carlos	Proyecto Habitacional, Las Azucenas, Melchorita, Maravilla (Sectors 1 and 2), Empalme de Cruz Verde, Las Marías, Mata de Caña, San Carlos (Sectors 3 and 4), Ojo de Agua, El Papaturre, El Zapotal
El Almendro	Villa Alvarez, El Nisperal, Las Bellezas, Barrio Aristides Sánchez, La Tranquera, El Cascal, El Peligro, Las Vegas, Espino Negro, La Flor, Las Latas, Toro Bayo (Sector 1)
San Juan del Norte	San Juan del Norte

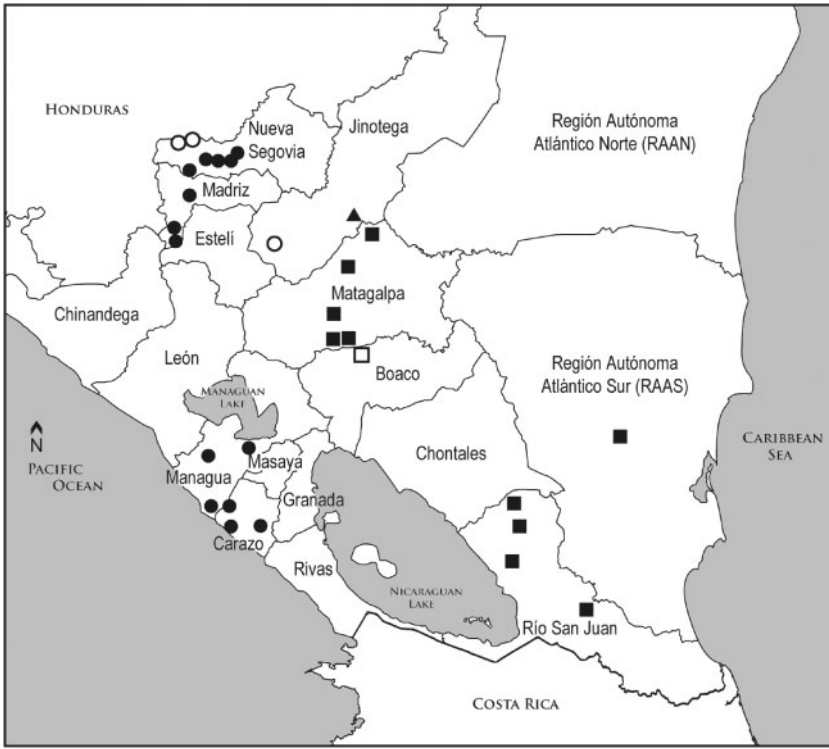


FIG. 2. A sketch map of the eight department of Nicaragua, showing the sites at which at least one *Triatoma ryckmani* (●), *Tri. nitida* (○), *Panstrongylus geniculatus* (■), *P. rufotuberculatus* (□) or *Eratyrus cuspidatus* (▲) was collected.

or, for the *Panstrongylus*, in pieces of wood) but the three *Tri. nitida* caught were all intradomiciliary.

Until quite recently, the general view was that *Tri. ryckmani* was a rare Central

American species. In Guatemala over the last few years, however, large numbers of *Tri. ryckmani* have been caught not only in bromeliads and cacti in semi-arid regions but also colonizing human dwellings and

TABLE 2. Details of the *Rhodnius pallescens* specimens found in six municipalities of the Rio San Juan department

Municipality	No. collected:						
	From intradomiciliary sites*	From peridomiciliary sites*	Adult females	Adult males	Adults of unknown gender	Adults and Nymphs	and nymphs
El Almendro	8	11	9	12	8	3	32
San Miguelito	7	0	14	6	1	2	23
San Carlos	9	1	4	11	4	0	19
Morrito	0	0	1	1	0	0	2
El Castillo	1	0	0	0	1	0	1
San Juan del Norte	0	0	0	0	1	0	1
All six	25	12	28	30	15	5	78

*The exact collection site was only known for 37 specimens; many of the 41 other specimens were handed to the research team, with no details of their collection site, by the members of the sprayed households.

TABLE 3. Details of the collections of free tritatomine species made in Nicaragua

Species	Department	Municipality and (locality)	Collected from sites that were:			No. collected:	
			Intradomiciliary?	Peridomiciliary?	Females	Males	All
<i>Tritatoma ryckmani</i>	Managua	San Rafael (Los Navarrete)	Yes	?	1	0	1
		Managua (Río Rubenia, Cedro Galán)	Yes	Yes	2	1	3
	Nueva Segovia	San Fernando (Salamani)	?	?	1	0	1
		Mozonte (Los Arados, Yaraje, Quisuli)	?	Yes	2	1	3
	Matriz	Somoto (Sector 17)	?	?	1	0	1
		San José de Cusmapa (Jocomico, El Portillo)	Yes	?	0	2	2
Carazo	Diriamba (La Boquita, Los Baltodano)	Yes	?	2	0	2	
	La Conquista (El Naranjo)	?	?	1	0	1	
<i>Tritatoma nitida</i>	Nueva Segovia	Dipilto (Las Manos)	Yes	?	1	1	2
	Jinotega	San Rafael Norte (unknown)	Yes	?	1	1	1
<i>Pansstrongylus geniculatus</i>	Río San Juan	El Almendro (El Peligro, El Nisperal, Las Palomas)	?	?	1	2	3
		El Castillo (El Gordiano)	?	?	1	0	1
	Matagalpa	San Carlos (Maravilla 1)	?	?	0	1	1
		Río Grande (El Comejen)	?	Yes	0	1	1
<i>Pansstrongylus rifotuberculatus</i>	Matagalpa	Esquipulas (El Dorado Zone 2)	Yes	Yes	0	2	2
		Matagalpa (Las Momias)	Yes	?	1	0	1
	Boaco	San José de los Remates (La Luna)	Yes	?	0	1	1
<i>Eratyrus cuspidatus</i>	Jinotega	El Cuá (El Cuá)	Yes	?	0	1	1

?, No reliable information available.

chicken coops (Marroquín *et al.*, 2004; Monroy *et al.*, 2004). As this species can be infected with *Try. cruzi* in the laboratory (unpubl. obs.), it may act as a important vector in some parts of Central America, although, so far, all the wild-caught specimens of *Tri. ryckmani* that have been checked have been found free of flagellate infection (Nakagawa *et al.*, 2005).

Triatoma nitida still appears to be scarce in Nicaragua. In Guatemala, in contrast, Nakagawa *et al.* (2005) found this species to be widespread, albeit in quite low numbers, in both domiciliary and peridomestic sites within 37 villages.

Like *Tri. nitida*, *P. geniculatus* does not seem to be a potential threat to human health in Nicaragua, as only adults (presumably from breeding sites elsewhere) can be found in Nicaraguan houses, and then only very rarely. In places such as the Brazilian Amazon and Venezuela, however, this species can colonize domestic or peridomestic areas and become a potential vector (Valente *et al.*, 1998; Reyes-Lugo and Rodríguez-Acosta, 2000)

If, as seems possible, the activities of the CAI lead to the eradication of *R. prolixus* from Nicaragua and a marked reduction in the numbers of intradomestic *Tri. dimidiata* in the country, then the *R. pallescens* in the south-east and the *Tri. ryckmani* in the north-west and south-west may become much more epidemiologically significant, as vectors of *Try. cruzi*.

ACKNOWLEDGEMENTS. The authors thank the technicians of the Vector Control Unit (ETV) and the epidemiologists of the primary healthcare units (SILAIS) of the Ministry of Health, for their valuable field work. They are also grateful to Dr P. Hanson of the University of Costa Rica's School of Biology for his revision of the manuscript. This work was partially supported by the Pan American Health Organization. It also benefited from the Network for Research and Training in

Tropical Diseases in Central America (NeTropical) and the ECLAT network.

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Received 22 September 2005,

Revised 16 November 2005,

Accepted 18 November 2005

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