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Tracing triatomines in central america: confirmation of the occurrences of *Eratyrus cuspidatus* Stål, 1859, *Panstrongylus geniculatus* (Latreille, 1811) and *Panstrongylus rufotuberculatus* (Champion, 1899) (Hemiptera: Reduviidae: Triatominae) from Honduras

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Abstract

The subfamily Triatominae is comprised of 159 species. *Although Eratyrus cuspidatus, Panstrongylus geniculatus and Panstrongylus rufotuberculatus* were mentioned as occurring in Honduras in a scientific meeting in 2018, this study presents the first formal records for the three species in the country. The confirmation of *P. rufotuberculatus* is based on one male and one female specimen collected in the Azul Meambar National Park in 2021 and 2022. The occurrences of *E. cuspidatus* and *P. geniculatus* are supported by photographic records taken in the same locality by the collector. Including these records, seven species are formally documented in Honduras.

Additional keywords: Central America, Chagas disease; disease vectors; Triatominae diversity

Introduction

Triatominae (Hemiptera: Reduviidae) are known for their role as vectors of *Trypanosoma cruzi* (Chagas, 1909), the etiological agent of Chagas disease (Chagas 1909). Lent and Wygodzinsky (1979) provided a classical treatment of the group, identifying them as obligate blood feeders, Masonick *et al.* (2024) proposed an expansion of Triatominae, incorporating predatory taxa traditionally considered non-hematophagous (Gil-Santana *et al.* 2015). Peterson *et al.* (2024) compiled updated information on the global distribution of Triatominae, including species recorded from Central America. In Honduras, Galvão *et al.* (2003) listed four Triatominae

species: *Rhodnius prolixus* Stål, 1859, *Triatoma dimidiata* (Latreille, 1811), *Triatoma nitida* Usinger, 1939 and *Triatoma ryckmani* Zeledón & Ponce, 1972. In 2018, *Eratyrus cuspidatus* Stål, 1859, *Eratyrus mucronatus* Stål, 1859, *Panstrongylus geniculatus* (Latreille, 1811) and *Panstrongylus rufotuberculatus* (Champion, 1899) were cited as present in Honduras during a scientific meeting (Secretaría de Salud, Gobierno de la República de Honduras, 2018), but these reports lacked documented specimens and were not formally published.

Herein, we provide the first confirmed records of *E. cuspidatus*, *P. geniculatus*, and *P. rufotuberculatus* in Honduras. The confirmation of the three species is

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based on physical specimens, also confirmed through photographic documentation (Figure 1 and Table 1).

Materials and Methods

Specimens deposited in the collection of the Escuela Agrícola Panamericana Zamorano (EAPZ) were analyzed. In addition, specimens were collected in 2021 and 2022 in the Parque Nacional Azul Meambar (Panacam), Honduras. The region comprises tropical moist broadleaf forests, intermixed with agriculture and grazing lands. Active daytime searches and nocturnal light trapping (mercury-vapor and UV) were employed (Figure 2A-C).

Identification was performed using the keys of Lent and Wygodzinsky (1979) and Carcavallo *et al.* (1998). Records are supplemented with photographic observations available on iNaturalist, taken by the same collector (Table 1).

Results and Discussion

Upon analyzing the EAPZ collection, one specimen of *E. cuspidatus*, five *P. geniculatus*, and four *P. rufotuberculatus* were found, captured between 1995 and 2001. The entomological survey conducted in the departments of Comayagua, specifically in the Parque Nacional Azul Meambar (Panacam), resulted in the documentation of

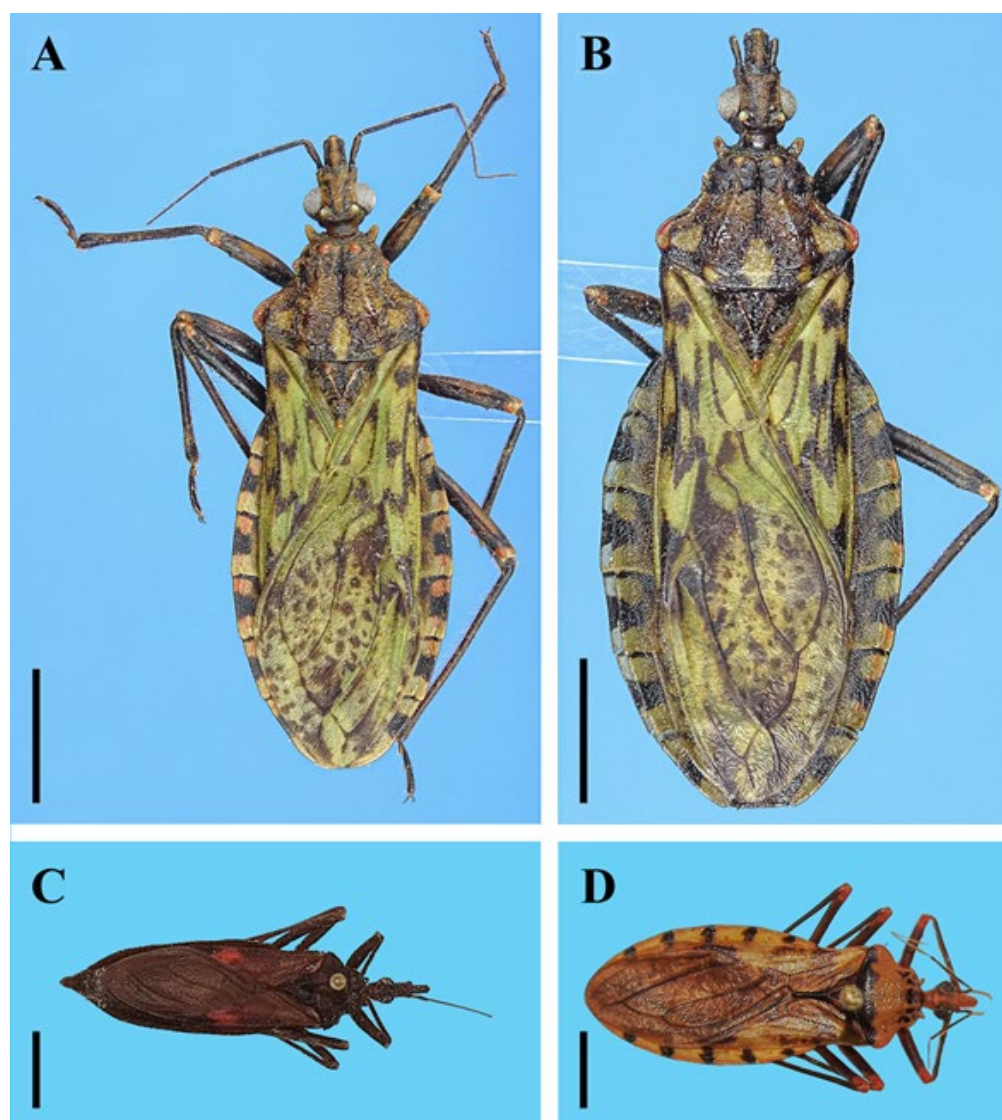


Figure 1. *Panstrongylus rufotuberculatus*, dorsal view. A. Male. B. Female. C. *Eratyrus cuspidatus*, dorsal view. D. *Panstrongylus geniculatus*, dorsal view. Scales 5.0 mm.

Table 1. Observations of *Panstrongylus geniculatus*, *Panstrongylus rufotuberculatus*, and *Eratyrus cuspidatus* in Honduras (iNaturalist).

Species	Observation Link	ID code on iNaturalist
<i>Panstrongylus geniculatus</i>	www.inaturalist.org/observations/121754623	121754623
<i>Panstrongylus geniculatus</i>	www.inaturalist.org/observations/139381122	139381122
<i>Panstrongylus geniculatus</i>	www.inaturalist.org/observations/139952838	139952838
<i>Panstrongylus geniculatus</i>	www.inaturalist.org/observations/151804637	151804637
<i>Panstrongylus geniculatus</i>	www.inaturalist.org/observations/159220758	159220758
<i>Panstrongylus geniculatus</i>	www.inaturalist.org/observations/159960228	159960228
<i>Panstrongylus geniculatus</i>	www.inaturalist.org/observations/160768575	160768575
<i>Panstrongylus geniculatus</i>	www.inaturalist.org/observations/162447186	162447186
<i>Panstrongylus rufotuberculatus</i>	www.inaturalist.org/observations/202573574	202573574
<i>Panstrongylus rufotuberculatus</i>	www.inaturalist.org/observations/161363855	161363855
<i>Panstrongylus rufotuberculatus</i>	www.inaturalist.org/observations/160826078	160826078
<i>Panstrongylus rufotuberculatus</i>	www.inaturalist.org/observations/161220035	161220035
<i>Panstrongylus rufotuberculatus</i>	www.inaturalist.org/observations/130450309	130450309
<i>Panstrongylus rufotuberculatus</i>	www.inaturalist.org/observations/88187761	88187761
<i>Eratyrus cuspidatus</i>	www.inaturalist.org/observations/162116099	162116099
<i>Eratyrus cuspidatus</i>	www.inaturalist.org/observations/159220763	159220763

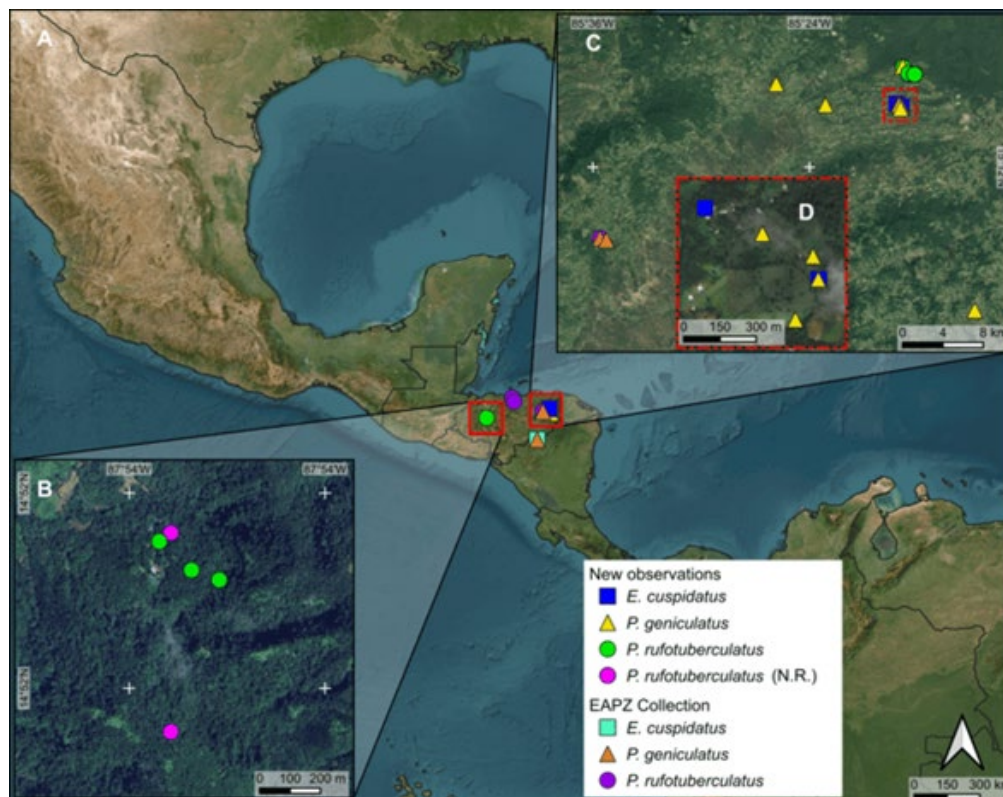


Figure 2. Collection localities of *E. cuspidatus*, *P. geniculatus* and *P. rufotuberculatus* in Honduras. A. Distribution of points of occurrence in the country. B. Collection localities of *P. rufotuberculatus* in the Parque Nacional Azul Meambar, Comayagua. C. Collection and registration localities in iNaturalist in the departments of El Paraiso and Olancho. D. Registration localities in iNaturalist in the Dulce Nombre de Culmí, Olancho. NR: New record (specimen deposited in EAPZ collection).

live individuals of these three triatomine species, not previously confirmed in Honduras. Specimens were obtained either through direct collection or photographic records, enabling reliable identification using classical taxonomic keys. Below, we present detailed records for each species, including collection data and associated observations.

Eratyrus cuspidatus Stål, 1859. **HONDURAS. El Paraíso:** Capire, 675 msnm, 13°58'54"N, 85°49'25"W, 16/IV/1999, R. D. Cave & J. Torres col. (1 ex., EAPZ 33.246).

Panstrongylus geniculatus (Latreille, 1811). **HONDURAS. El Paraíso:** Capire, 575 msnm, 13°58'54"N, 85°49'25"W, 12/VI/1999, R. D. Cave & J. Torres col. (1 ex., EAPZ 59.941); Capire, 675 msnm, 13°58'54"N, 85°49'25"W, 12/VI/1999, R. D. Cave col. (1 ex., EAPZ 59.942). **Olancho:** Montaña de Malacate, 900 msnm, 15°08'04"N, 85°35'36"W, 14/VI/1999, R. D. Cave & J. Torres col. (1 ex., EAPZ 59.943); Montaña de Malacate, 800 msnm, 15°07'57"N, 85°35'15"W, 15/IV/1999, R. D. Cave & J. Torres col. (1 ex., EAPZ 59.944; 1 ex., 59.945).

Panstrongylus rufotuberculatus (Champion, 1899). **HONDURAS. Cortés:** Santa Cruz de Yojoa, Azul Meámbar National Park (PANACAM), 20/V/1995, R. Cordero col. (1 ex., EAPZ 59.946). **Olancho:** Montaña de Malacate, 900 msnm, 15°08'04"N, 85°35'36"W, 9/IX/1999, R. D. Cave, J. Torres & A. Díaz col. (1 ex., EAPZ 59.947). **Atlántida:** Pico Bonito National Park, CURLA Station, 196 msnm, 15°42'07"N, 86°50'48"W, 22/V/2001, R. D. Cave, J. Torres & J. Samoya col. (1 ex., EAPZ 60.629). **Yoro:** Pico Bonito National Park, San Antonio, 1.160 msnm, 15°32'34"N, 86°46'27"W, 19/V/2001, R. D. Cave, J. Torres & J. Samoya col. (1 ex., EAPZ 60.914). **Comayagua:** Azul Meámbar National Park (PANACAM), 14°52'22"N, 87°54'17"W (1 ♂), 8–19/VI/2021; 29/VI/2022 (1 ♀), van den Berghe col. (new record).

Panstrongylus geniculatus occurs from northern Argentina to southern Mexico (Lent and Wygodzinsky, 1979; Galvão *et al.* 2003). Its occurrence in bordering countries like Guatemala and Nicaragua has been reported for decades (Maes 1992). It is primarily sylvatic but occasionally enters human dwellings and has high rates of natural infection by *T. cruzi* (Felicangeli *et al.*, 2004; Vivas *et al.*, 2021). The present observations for Honduras in the Department of Olancho all come from forest edges in the buffer zone of the Rio Platano Biosphere reserve

characterized by moderately intervened pastures and are attracted to lights.

Panstrongylus rufotuberculatus is similarly widespread, from northern Argentina to southern Mexico (Galvão *et al.*, 2003; Bérenger *et al.*, 2009; Hiwat 2014). (Peterson *et al.* 2024) recently recorded it in Belize, making El Salvador the only Central American country without confirmed presence. It is rarely found indoors and shows low *T. cruzi* infection rates (Depickère *et al.*, 2011).

Eratyrus cuspidatus has a narrower range, from northern Peru to southern Mexico. It is unreported in some Central American countries (Galvão *et al.*, 2003), and while home invasions are rare, it presents high *T. cruzi* infection rates (Velázquez-Ramírez *et al.*, 2023).

Both the Olancho (iNaturalist) and Cortés (Panacam lodge) sites are inland in the Foothills of at 600 to 750m elevation with deciduous premontane forest cover. The observations were made at light traps, and it is likely that species' seeking out human habitation and more a result of being drawn to light sources. However, as the electric grid spreads and solar panels in remote areas become more prevalent human contact in rural dwellings may increase.

The record of these three species for Honduras highlights the importance of entomoepidemiological surveillance in the region, mainly due to the high rate of natural infection of *P. geniculatus* and *E. cuspidatus* (Vivas *et al.* 2021; Velázquez-Ramírez *et al.* 2023). In addition, the richness of triatomines in Honduras appears to be under sampled, for example, *Rhodnius pallescens* Barber, 1932, *Rhodnius pictipes* Stål, 1872 and *Triatoma infestans* (Klug, 1834) are species that are present in countries north and south of Honduras (Galvão *et al.* 2003), but so far there have been no records of occurrence in the country.

Conclusion

This study formally confirms the presence of *E. cuspidatus*, *P. geniculatus* and *P. rufotuberculatus* in Honduras. With these additions, the number of Triatominae species recorded in the country rises to seven. In addition, there is still a knowledge gap about the richness of Triatominae for the country.

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Conflicts of interest

The authors declare no conflict of interest.

References

- BÉRENGER J-M, PLUOT-SIGWALT D, PAGÈS F, BLANCHET D, AZNAR C. 2009. The Triatominae species of French Guiana (Heteroptera: Reduviidae). *Mem Inst Oswaldo Cruz*, 104:1111–1116. <https://doi.org/10.1590/S0074-02762009000800007>
- CARCAVALLO RU, GIRÓN IG, JURBERG J, GALVÃO C, LENT H. 1998. Pictorial Keys for Tribes, Genera and Species of the Subfamily Triatominae. In: Carcavallo RU, editor. Atlas of Chagas' Disease Vectors in the Americas. v.1. Brasil: FioCruz: 107-244 p.
- DEPICKÈRE S, DURÁN P, LÓPEZ R, CHÁVEZ T. 2011. Presence of intradomicile colonies of the triatomine bug *Panstrongylus rufotuberculatus* in Muñecas, La Paz, Bolivia. *Acta Trop*, 117:97–100.
- FELICIANGELI MD, CARRASCO H, PATTERSON JS, SUAREZ B, MARTÍNEZ C, MEDINA M. 2004. Mixed domestic infestation by *Rhodnius prolixus* Stål, 1859 and *Panstrongylus geniculatus* Latreille, 1811, vector incrimination, and seroprevalence for *Trypanosoma cruzi* among inhabitants in El Guamito, Lara State, Venezuela. *Am J Trop Med Hyg*, 71:501–505.
- GALVÃO C, CARCAVALLO R, ROCHA DD, JURBERG J. 2003. A checklist of the current valid species of the subfamily Triatominae Jeannel, 1919 (Hemiptera, Reduviidae) and their geographical distribution, with nomenclatural and taxonomic notes. *Zootaxa*, 202:1-36. <https://doi.org/10.11646/zootaxa.202.1.1>
- GIL-SANTANA HR, FORERO D, WEIRAUCH C. 2015. Assassin bugs (Reduviidae excluding Triatominae). In: Panizzi AR, Grazia J, editors. True bugs (Heteroptera) of the Neotropics. Netherlands: Springer: 307–351p. https://doi.org/10.1007/978-94-017-9861-7_12
- HIWAT H. 2014. Triatominae species of Suriname (Heteroptera: Reduviidae) and their role as vectors of Chagas disease. *Mem Inst Oswaldo Cruz*, 109:452–458. <https://doi.org/10.1590/0074-0276130408>
- LENT H, WYGODZINSKY P. 1979. Revision of the Triatominae (Hemiptera, Reduviidae), and their significance as vectors of Chagas' disease. *Bull Am Mus Nat Hist*, 163:1–520.
- MAES J-M. 1992. Los Triatominae (Heteroptera: Reduviidae) en Nicaragua. *Revista Nicaragüense de Entomología*, 21:1–8.
- MASONICK PK, KNYSHOV A, GORDON ER, FORERO D, HWANG WS, HOEY-CHAMBERLAIN R, ET AL. 2024. A revised classification of assassin bugs (Hemiptera: Heteroptera: Reduviidae) based on combined analysis of phylogenomic and morphological data. *Syst Entomol*, 50:102–138. <https://doi.org/10.1111/syen.12646>
- PETERSON JK, BARTLETT CR, OLIVEIRA J. 2024. Novel finding of *Panstrongylus rufotuberculatus* (Champion, 1899) (Hemiptera, Reduviidae, Triatominae) in Belize, with a note on single *Rhodnius* Stål, 1859 species observations. *Check List*, 20: 588–593. <https://doi.org/10.15560/20.3.588>
- SECRETARÍA DE SALUD, GOBIERNO DE LA REPÚBLICA DE HONDURAS. UNIDAD DE VIGILANCIA: 18a Reunión de la Comisión Intergubernamental de la Iniciativa IPCAM. 2018. Tegucigalpa, Honduras.
- VALLEJO GA, GUHL F, SCHAUB GA. 2009. Triatominae-*Trypanosoma cruzi*/T. rangeli: vector-parasite interactions. *Acta Trop*, 110:137-147. <https://doi.org/10.1016/j.actatropica.2008.10.001>
- VELÁZQUEZ-RAMÍREZ DD, FUENTES-VICENTE JA, DEBBOUN M, LEÓN AA, IRECTA-NÁJERA C, CRUZ-MÉNDEZ L, et al. 2023. First Report of *Eratyrys cuspidatus* (Hemiptera: Reduviidae) Infected with *Trypanosoma cruzi* in Peridomestic Environment in Chiapas, Mexico. *Vector-Borne and Zoonotic Dis*, 23:583–587.
- VIVAS RJ, GARCÍA JE, GUHL F, HERNÁNDEZ C, VELÁSQUEZ N, RAMÍREZ, JD, et al. 2021. Systematic review on the biology, ecology, genetic diversity and parasite transmission potential of *Panstrongylus geniculatus* (Latreille 1811) in Latin America. *Mem Inst Oswaldo Cruz*, 116:e200528. <https://doi.org/10.1590/0074-02760200528>