

First record of *Sicarius rugosus* (F.O. Pickard-Cambridge, 1899) (Araneae: Sicariidae) in Guatemala

Primer registro de *Sicarius rugosus* (F.O. Pickard-Cambridge, 1899) (Araneae: Sicariidae) en Guatemala

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Abstract. For the first time, the species *Sicarius rugosus* is recorded from Guatemala, based on a male and two immatures collected in the department of Zacapa and a female from the department of El Progreso. The specimens of *S. rugosus* they were found living in construction zones, in gardens of human dwellings, in dry forest fragments and xeric environments.

Key words: El Progreso; Neotropics; six eyed spider; Zacapa.

Resumen. Por primera vez se registra la especie *Sicarius rugosus* para Guatemala, a partir de un macho y dos inmaduros recolectados en el departamento de Zacapa y una hembra del departamento de El Progreso. Los especímenes de *S. rugosus* se encontraron habitando en zonas de construcción, jardines de viviendas humanas, y en fragmentos de bosque seco y ambientes xéricos.

Palabras clave: Araña de seis ojos; El Progreso; Neotrópico; Zacapa.

These spiders of the genus *Sicarius* Walckenaer, 1847 do not spin webs, instead they stalk their prey while they are buried in dry sediments (Reiskind 1966). They can camouflage thanks to special silks on their cuticle, which help to adhere sand particles to their body (Duncan *et al.* 2007). Another unique characteristic is the pot shape of their egg cups, which are made of sand (Levi & Levi 1969; Aguilar & Méndez 1971). They generally live only in xeric habitats, especially deserts and tropical dry forests (Magalhaes *et al.* 2017). Have a venom that contains sphingomyelinase D, an enzyme responsible for necrotic activity. However, the potential activity of the enzyme varies among *Sicarius* species (Binford *et al.* 2009).

To date, the genus has 21 described species (Magalhães *et al.* 2017; World Spider Catalog 2024). *Sicarius rugosus* (F.O. Pickard-Cambridge, 1899) is the only species present in Central America, currently distributed in Costa Rica (Pickard-Cambridge 1899), El Salvador (Kraus 1955), Nicaragua (Magalhaes *et al.* 2017), and, recently in Honduras by Cubas-Rodríguez & Brescovit (2024). The goal of the present contribution is reported the first record of *S. rugosus* in Guatemala in the departments of El Progreso and Zacapa.

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Field sampling was carried out in the months of January to November from 2021 to 2023. Specimens were obtained by direct collection during daytime between 10:00 h and 18:00 h, with the exception of the first individual, which was caught in a light trap at night (23:30 h). The specimens were captured with tweezers. The samples were preserved in 96% ethanol and the material examined was deposited in the Collection of the Laboratory of Entomology and Systematics of the Universidad del Valle de Guatemala (UVGC; K. Herrera-Jordan & J. Yoshimoto).

The photos of the female in nature were taken with a 10 mm macro lens, attached to a Sony camera, model LCE-7M3. Sample examination was done with a stereoscope WILD Heernugg (TYP 398700, Switzerland, ADMI-1-PR-EG2585 Series). Identification was based on Cubas-Rodríguez & Brescovit (2024), and Magalhães *et al.* (2017). The map was prepared in the Qgis Geographic Information System version 23.22.6.

***Sicarius rugosus* (F.O. Pickard-Cambridge, 1899)**
(Figs. 1A-D)

Diagnosis. Males of *S. rugosus* (Fig. 1A) are distinguished by the very short bulb with a long curved embolus (Figs. 1C-D; Magalhaes *et al.* 2017: Figs. 60A-C). Females (Fig. 1B) are distinguished by having few short and robust branches in the spermathecae, in addition to the absence of ventral branches (see Magalhaes *et al.* 2017: Figs. 60E-J).

Material examined. Guatemala: Department of Zacapa: municipality of Cabañas: Aldea El Arenal, Natural Reserve for the Conservation of Heloderma, 1 male (UVGC 0008481), 15/01/2021, Jiichiro Yoshimoto, collected with light trap; same data (14.883333, -89.783333, elevation: 510 m), 1 immature (UVGC 0008482), 29/03/2021, K. Herrera, found under a rock; same data (14.883333, -89.783333, elevation: 510 m), 1 immature found under a log (UVGC 0008483) 29/03/2021, department of El Progreso, Momoto Dormido Biological Station (14.8172805, -90.1290766, elevation: 842 m), 1 female (not collected, photographed, Fig. 1B), 04/01/2023, K. Herrera, found next to a cement block near the “Momoto Dormido” Biological scientific station.

Distribution. Honduras, El Salvador, Nicaragua and Costa Rica (WSC 2024) and now recorded to Guatemala (Fig. 2). **New country record.**

Natural history. The specimens were collected in fragments of xeric and dry forest (seasonal dry forest) in the departments of El Progreso and Zacapa. The vegetation of the area is characterized by a thorny shrubland (mainly consisting of small shrubs, columnar cacti, and creeping cacti) and a tall dry forest (large trees reaching up to 25 m in height, such as the dry forest oak *Bucida macrostachya* or yaje *Leucaena* spp.) (Ariano *et al.* 2017). Females of *Sicarius rugosus* were found living in areas with a human-related structures, in particular under nylon tarps (Fig. 3) and construction material discarded. Males were found under dry logs, in El Progreso and Zacapa. The soil from where the spiders were collected was sandy, very rocky and with abundant leaves and dry branches on the ground. Males and females of this species were collected between 12:00 h and 23:30. In the case of males, it is very likely that during the afternoon and night they are active in search of females as well as in obtaining food. Regarding the female, she was found in her shelter, which could indicate that during the day she takes shelter and at night she is more active.

Comments. The documentation of *S. rugosus* from Guatemala represents the northernmost record for the species. The specimens of *S. rugosus* were found alive in human-related infrastructure, making it possible potential incidents with people. These results are similar

to those of the species in Honduras, where Cubas-Rodríguez & Brescovit (2024) mentioned that *S. rugosus* was found few meters from houses and in proximity to cattle.

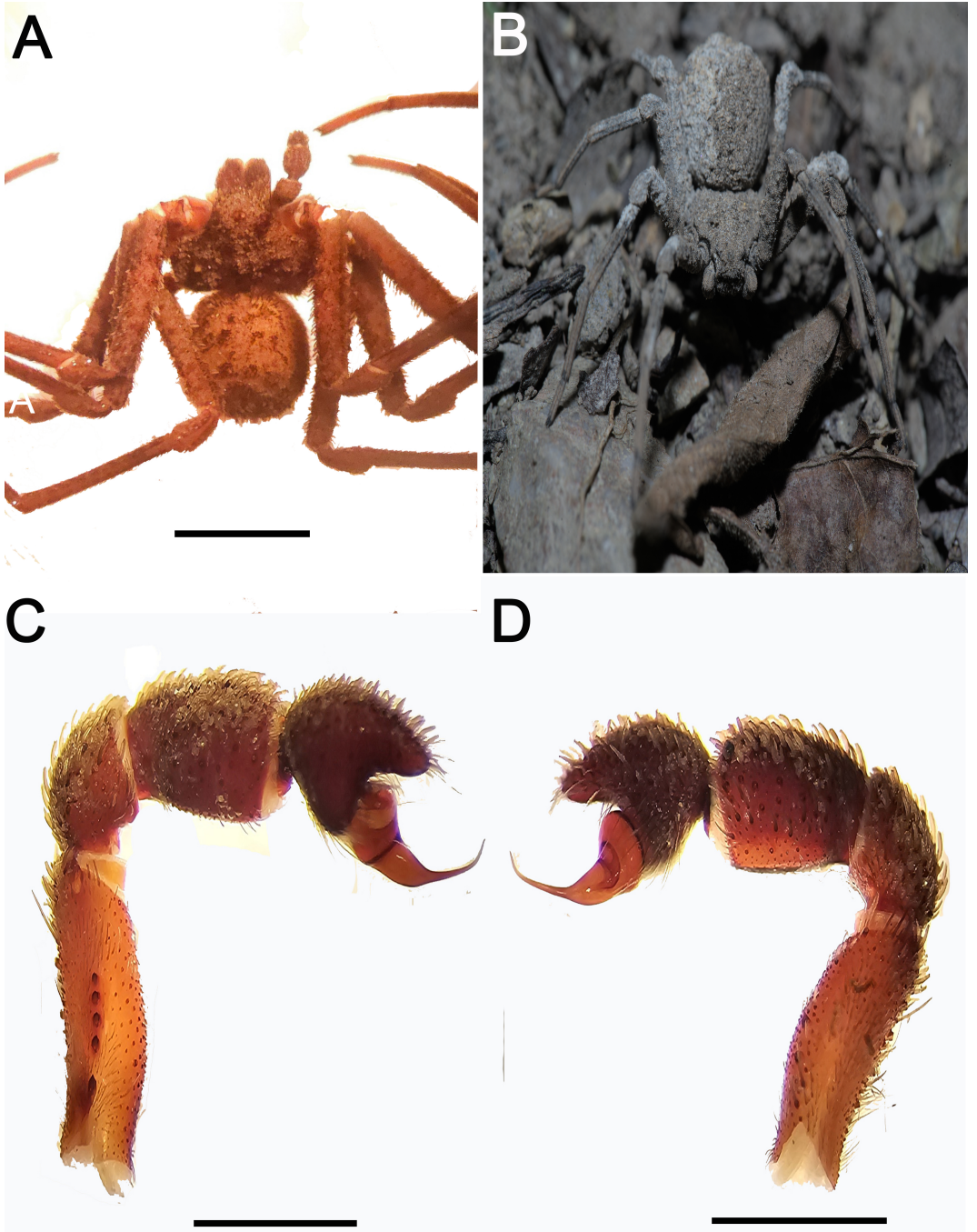


Figure 1. *Sicarius rugosus* (F.O. Pickard-Cambridge). **A.** Male, dorsal habitus. **B.** Female, dorsal habitus. **C.** Left palp, prolateral view. **D.** Left palp, retrolateral view. Scale bars: 0.5 mm. / **Figura 1.** *Sicarius rugosus* (F.O. Pickard-Cambridge). **A.** Macho, vista dorsal. **B.** Hembra, vista dorsal. **C.** Palpo izquierdo, vista prolateral. **D.** Palpo izquierdo, vista retrolateral. Escalas: 0,5 mm.

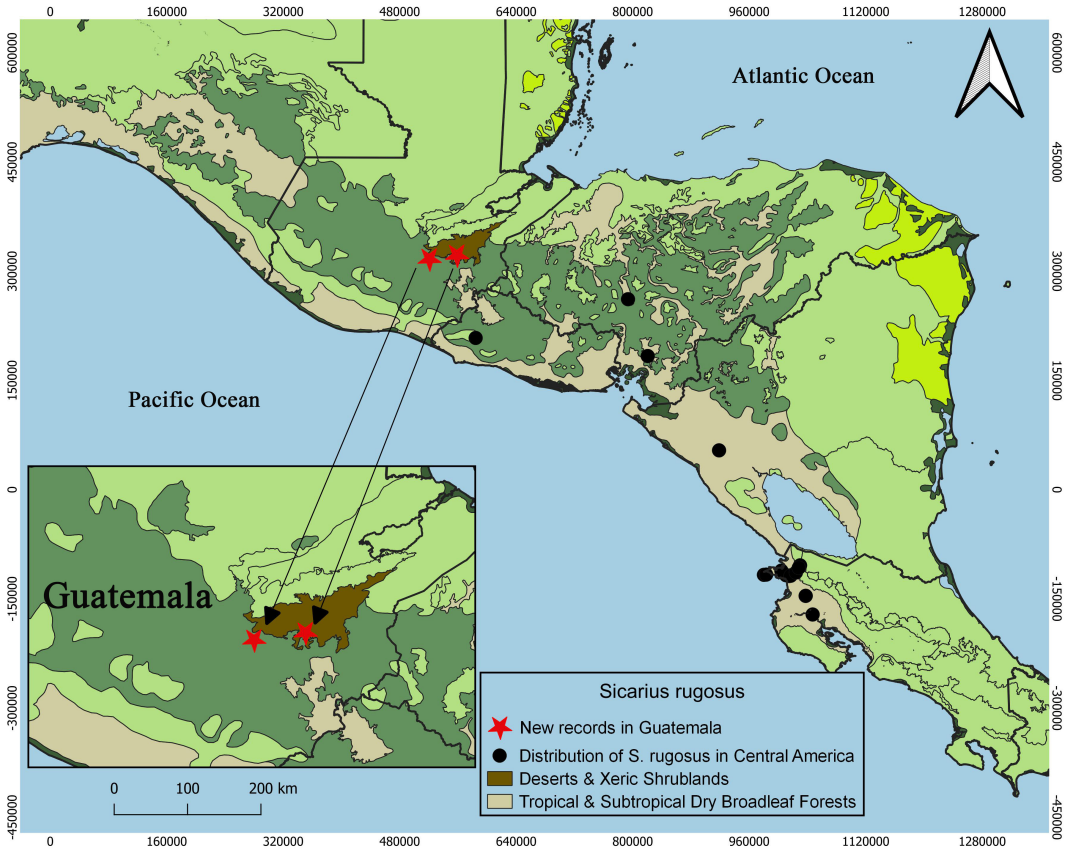


Figure 2. Distribution of *S. rugosus* in Guatemala and Central America. / **Figura 2.** Distribución de *S. rugosus* en Guatemala y Centroamérica.

It seems that *S. rugosus* could be considered a synanthropic or at least hemisynanthropic species, given its background in Honduras and Guatemala. In the case of Costa Rica and El Salvador, as far as we know, they have not been found near human dwellings, although in Guatemala it seems that this species is found in inter-domiciliary habitats, since it was found near a house, which is within the Momoto Dormido refuge, said refuge is at a distance of one kilometer from a large community known as “El Jute”.

Future studies are needed to address this aspect in order to know if these encounters are actually fortuitous, if they are related to the construction of houses, buildings, in habitats frequented by *S. rugosus* or if this species can actually be considered synanthropic, since current data from Honduras (Cubas-Rodríguez & Brescovit 2024), as in Guatemala, are few, because *S. rugosus* has been recorded in one or two locations in these countries, this could be influenced by the poor dispersion that these spiders present (Magalhaes *et al.* 2017), or by the great lack of arachnological studies.

Finally, our findings expand the distribution range of *S. rugosus* to five Central American countries. Magalhaes *et al.* (2021) predicted a distribution from southernmost area of Chiapas (Mexico), north of Costa Rica. Since then, we have reported new populations in Honduras (Cubas-Rodríguez & Brescovit 2024) and Guatemala (this paper). Following the prediction, it could be possible to find the species lives in the border regions of dry forest between Guatemala and Chiapas (Mexico).



Figure 3. Mound of earth previously covered with discarded black nylon where a female specimen of *S. rugosus* was found. / **Figura 3.** Montículo de tierra previamente cubierto por nailon negro desechado en donde se encontró un ejemplar hembra de *S. rugosus*.

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Author Contributions

AMC-R: Investigation, data curation, resources, original draft, conceptualization, methodology, investigation, visualization, review. **KH-J:** Supervision resources, funding, acquisition, writing - review, investigation & editing.

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