Brief Communication / Comunicación Breve

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Distribución de *Trichonephila clavipes* (Linnaeus, 1767) (Araneae: Araneidae) en Honduras

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Abstract. *Trichonephila clavipes* is recorded for the first time in the department of Francisco Morazán, from a female specimen collected on the campus of the Universidad Nacional Autónoma de Honduras (CU-UNAH), in Tegucigalpa, Honduras. We also present additional records of males and females collected in the city of La Ceiba (department of Atlántida) and on the island of Útila (department of Islas de la Bahía). To complement the distribution, we included in a map 200 records obtained from the citizen science platform iNaturalist.

Key words: Arachnida; Central America; gold silk spider; Neotropical.

Resumen. *Trichonephila clavipes* se registra por primera vez en el departamento de Francisco Morazán, a partir de un ejemplar hembra recolectado en el campus de la Universidad Nacional Autónoma de Honduras (CU-UNAH), en Tegucigalpa, Honduras. También presentamos registros adicionales de machos y hembras recolectados en la ciudad de La Ceiba (departamento de Atlántida), y en la isla de Útila (departamento de Islas de la Bahía). Para complementar la distribución, incluimos en un mapa 200 registros obtenidos de la plataforma de ciencia ciudadana iNaturalist.

Palabras clave: Arachnida; araña de seda dorada; América Central; neotropical.

The family Araneidae Clerck, 1757 today has at least seven recognized subfamilies (Sharff *et al*. 2020) and among these, the controversial subfamily Nephilinae, sometimes considered as a family (Kuntner 2023), but recently downgraded to the subfamily of Araneidae (Hormiga *et al*. 2023) and considered as such today. Nephilinae currently includes 58 species grouped into seven genera, including *Trichonephila* Dahl, 1911 with 26 species (WSC 2024).

From Honduras, there is only the record for *Trichonephila clavipes* (Linnaeus, 1767) given by Levi (1980), however, said author does not explicitly mention "Honduras" as such in his work. The distribution of the species is reflected in the map of the countries of Central America, where Honduras is located (see Levi 1980). This map recorded *T. clavipes* for the departments of Atlántida, Choluteca, Yoro, or Cortés (not possible to distinguish) and a

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point outside the map of the country, which could indicate the presence of the species on Swan Island (Isla Cisne), department of Islas de la Bahía (see Levi 1980, map 2).

Here, we update the distribution data of the golden silk spider *T. clavipes* providing records of the examined specimens from the departments of Francisco Morazán and Atlántida and the citizen science platform iNaturalist.

Field sampling took place in June and September 2023. The specimens were captured by direct observation during daytime, with the help of tweezers. The samples were preserved in 80% ethanol and the material examined was deposited in the Arachnid Collection of the Entomology Museum of the Universidad Nacional Autónoma de Honduras.

The specimens were examined with an Olympus SZ Tokyo stereomicroscope. The identification was made with the revision from Levi (1980). The map was prepared in the Qgis Geographic Information System version 23.22.6.

Regarding the iNaturalist data, the search was carried out within the website (https://www.inaturalist.org/). We reviewed 510 geolocated records from Honduras, for which the majority corresponded to adult females. After excluding duplicated records, we include in a distributional map a total of 200 data.

Family Araneidae Clerck, 1757
Subfamilia Nephilinae Simon, 1894
Genus *Trichonephila* Dahl, 1911

***Trichonephila clavipes* (Linnaeus, 1767)**
(Figs. 1-4)

Diagnosis. The male *T. clavipes* can be easily recognized by a dark orange-yellow shell, with markings on each side of the head, yellow orange legs, dorsum of the abdomen with dark, shiny cardiac mark, scatters small spots of white pigment in two longitudinal bands on each side and posterior tip of abdomen dark (Fig. 2A). The palp has a long conductor that surrounds the *embolus*, *tegulum* with convolutions of the duct within it, and the long conductor with a twist near the tip (Figs. 2B, 3B-C). Females can be easily separated from other species of the genus by the colour of the abdomen, with the anterior dorsal area of the abdomen having a black transverse bar, followed by a white bar that disappears on the sides later, and by the two irregular rows of stains (Fig. 1A). The ventral area of the abdomen has a white bar posterior to the edge of the epigyne (Fig. 1B). The *epigynum* has a cornicular sculpture in the ventral medial portion, while the posterior part is smooth, with lateral openings (Fig. 3A).

Material examined. Honduras, department of Islas de la Bahia. Iguana Station, 16.103341, -86.898954, 1 male, 1 female 30 m; January 27, 2024. A.M. Cubas-Rodriguez (UNAH ME-Arácnidos-0017); departmen of Atlántida. Ceiba city. Colonia Brisas del Norte, 15.754237, -86.830522, 1 male, 1 female, 28 m; September 7, 2023. A.M. Cubas-Rodriguez & L. Johnson, in the backyard of a house (UNAH ME-Arácnidos-0015); department of Francisco Morazán. Tegucigalpa, "Ciudad Universitaria", in the campus of the Universidad Nacional Autónoma de Honduras. 14.086303, -87.166580, 1,056 m; 1 female; 14 June de 2023, A.M. Cubas-Rodriguez, in the vegetation surrounding building J1 (UNAH ME-Arácnidos-0016).

Known distribution. USA to Argentina. Introduced to São Tomé and Príncipe (WSC 2024).

Distribution in Honduras by departments. Atlántida, Choluteca, Cortés, Copán, Colón, Comayagua, El Paraíso, Francisco Morazán, Intibucá, Islas de la Bahía, La Paz, Lempira, Ocotepeque, Olancho, Santa Bárbara, Valle, Yoro (Fig. 4).

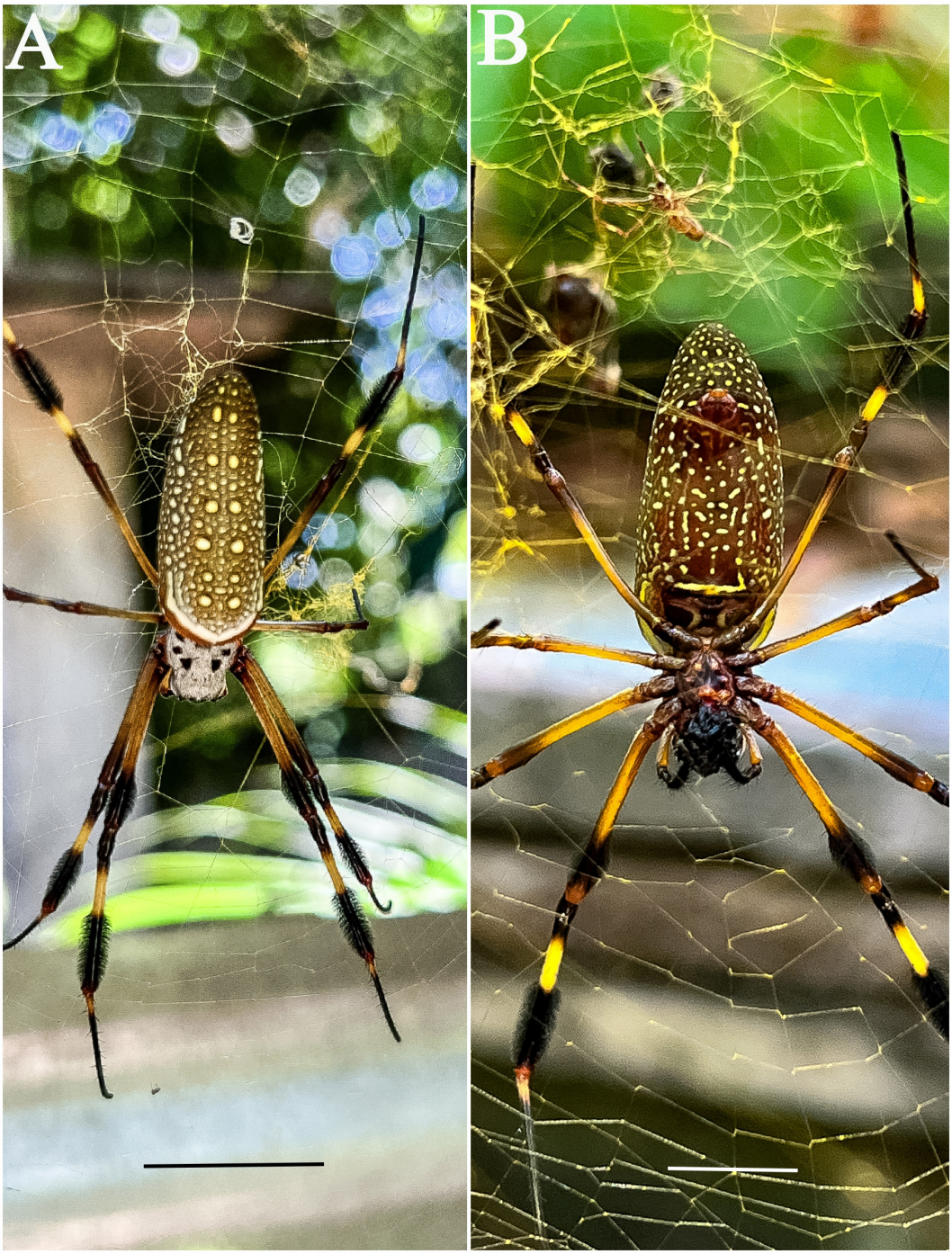

Figure. 1. Female of *Trichonephila clavipes* from the La Ceiba city. **A-B.** Dorsal and ventral habitus. Scale: 2.0 mm. / **Figura 1.** Hembra de *Trichonephila clavipes* de la ciudad de La Ceiba. **A-B.** Hábito dorsal y ventral. Escala: 2,0 mm.

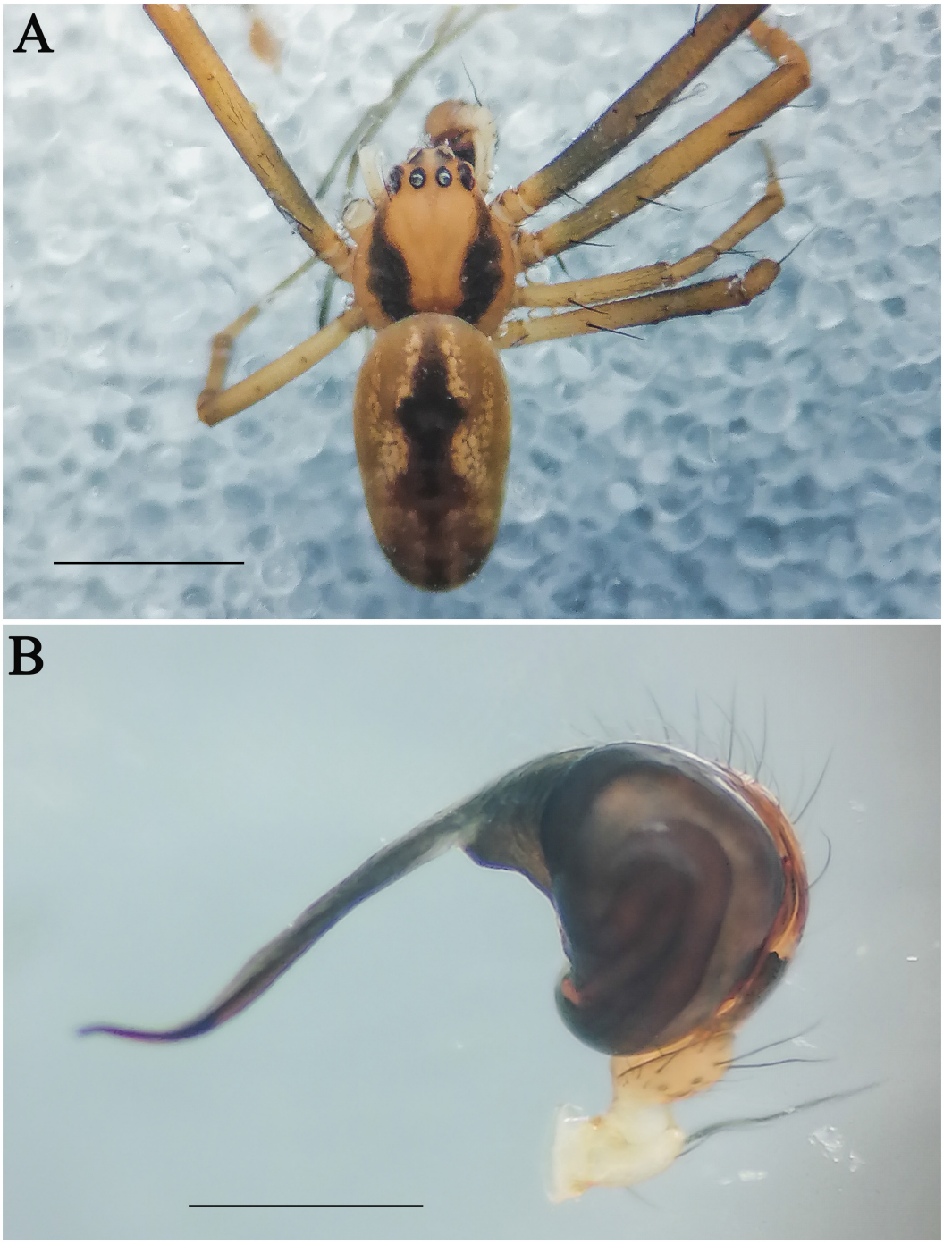

Figure 2. Male of *Trichonephila clavipes* from La Ceiba city. **A.** Dorsal habitus. **B.** Palp, retrolateral view. Scale: 0.5 mm. / **Figura 2.** Macho de *Trichonephila clavipes* de la ciudad de La Ceiba. **A.** Hábito dorsal. **B.** Palpo, vista retrolateral. Escala: 0,5 mm.

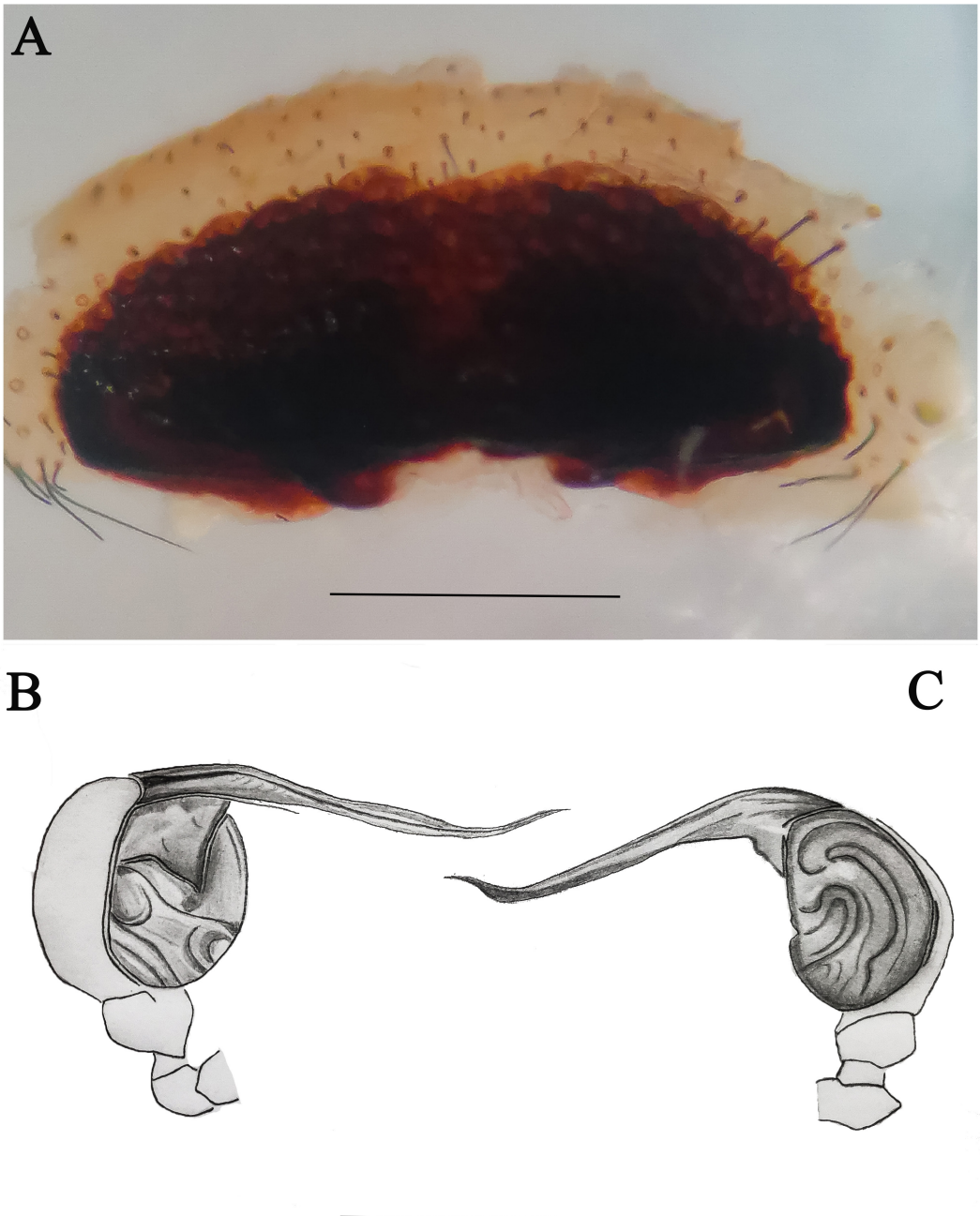

Figure 3. Genital structure of the female and the male of *Trichonephila clavipes*. **A**. Epigyne, ventral view. **B-C.** Male left palp, prolateral and retrolateral views. Scale: 0.5 mm. / **Figura 3.** Estructura genital de la hembra y el macho de *Trichonephila clavipes*. **A.** Epiginio, vista ventral. **B-C.** Palpo izquierdo macho, vistas prolateral y retrolateral. Escala: 0,5 mm.

Remarks. *Trichonephila clavipes* specimens occur in Honduras in a large number of ecosystems such as dry forests, cloud forests, mixed forests, tropical humid forests, pine forests and deciduous forests. The presence of *T. clavipes* in synanthropic environments is very common. A large number of records extracted from iNaturalist showed that this

species was easily found in gardens, and even inside houses such as corners, walls, under steps, and abandoned warehouses. As for the sexes of the spiders, the majority were females, only about 10 males were found out of the 280 records observed. This could be due to the small size of the males of this species, which means they can go unnoticed.

In Honduras, *T. clavipes* is widely distributed with a large number of photographic records in iNaturalist. The species has many distinguishable diagnostic characters associated with its external morphology, as explained in the diagnosis.

In recent years, the citizen science platform iNaturalist has served as a source of information in high-impact scientific works that address the distribution of species, as is the case of Luna *et al*. (2022), who took data from this application to estimate the distribution of *Dysdera crocata* C. L. Koch, 1838, in the Mexican states. Hazzi & Hormiga (2021) did something similar when using the information available from *Phoneutria depilata* (Strand, 1909) to estimate its distribution in Central America. Finally, Armas & Cubas-Rodriguez (2023) also extracted information from the photographic records of *Centruroides limbatus* (Pocock, 1898), in order to reaffirm its presence in the Honduran region. These are just some of the many cases found in the literature.

In summary, we provide an expanded and updated distribution for *T. clavipes* across Honduras, adding previously unknown data such as which ecosystems and altitudes. This collection of records shows that in Honduras the species occupies synanthropic habits, such as gardens, houses, and buildings.

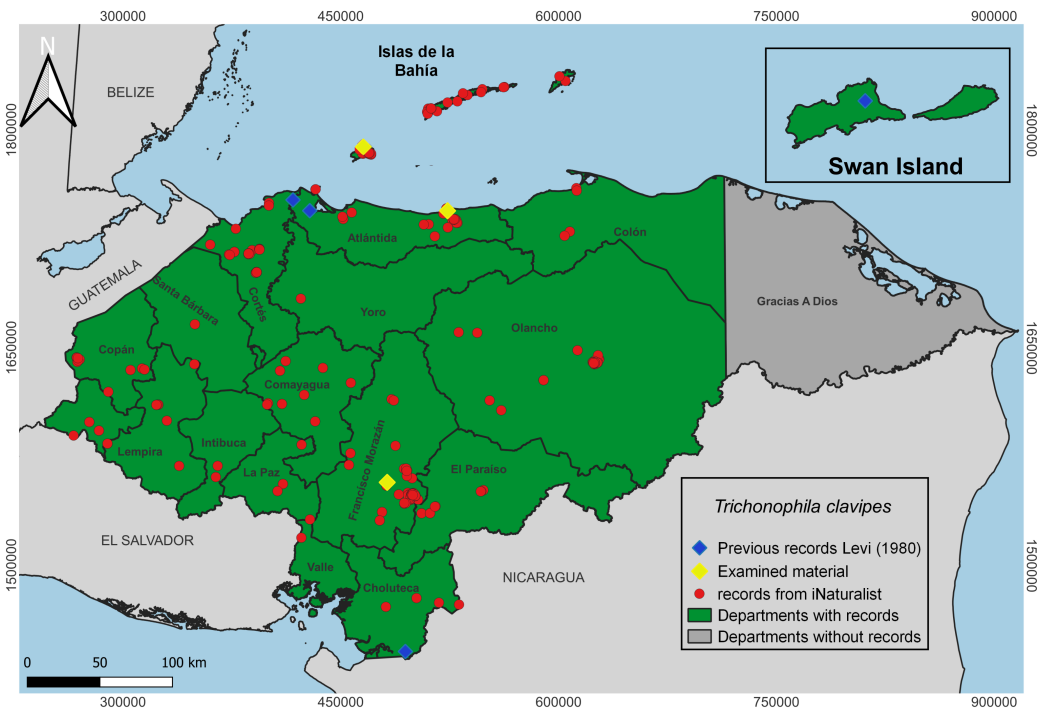

Figure. 4. Distribution of *Trichonephila clavipes* in Honduras. / **Figura 4.** Distribución de *Trichonophila clavipes* en Honduras.

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Author Contributions

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

Literature Cited

de Armas, L.F. and Cubas-Rodriguez, A.M. (2023) Presencia *de Centruroides limbatus* (Scorpiones: Buthidae) en Honduras. *Revista Nicaragüense de Entomología, 298*: 3-16.

de Luna, M., Garcia-Barrios, R. and Torres-Arredondo, B. (2022) New state records of the woodlouse spider *Dysdera crocata* C. L. Koch, 1838 (Araneae: Dysderidae) in Mexico. *Revista Chilena de Entomología, 48*(2): 329-334.

Hazzi, N.A. and Hormiga, G. (2021) Morphological and molecular evidence support the taxonomic separation of the medically important Neotropical spiders *Phoneutria epilate* (Strand, 1909) and *P. boliviensis* (F.O. Pickard-Cambridge, 1897) (Araneae, Ctenidae). *ZooKeys, 1022*: 13-50. https://doi.org/10.3897/zookeys.1022.60571

Hormiga, G., Kulkarni, S., Arnedo, M.A., Dimitrov, D., Giribet, G., Kallal, R.J. and Scharff, N. (2023) Genitalic morphology and phylogenomic placement of the Australian spider *Paraplectanoides crassipes* Keyserling, 1886 (Araneae, Araneidae) with a discussion on the classification of the family Araneidae. *Invertebrate Systematics, 37*(12): 797-818. https://doi.org/10.1071/IS23050

Kuntner, M., Čandek, K., Gregoric, M., Turk, E., Hamilton, C.A., Chamberland, L., Starrett, J., Cheng, R.C., Coddington, J.A., Agnarsson, I. and Bond, J.E. (2023) Increasing information content and diagnosability in family-level classifications. *Systematic Biology, 72*(4): 964-971. https://doi.org/10.1093/sysbio/syad021

Levi, H.W. (1980) The orb-weaver genus *Mecynogea,* the subfamily Metinae and the genera *Pachygnatha, Glenognatha* and *Azilia* of the subfamily Tetragnathinae north of Mexico (Araneae: Araneidae). *Bulletin of the Museum of Comparative Zoology, 149*: 1-74.

Scharff, N., Coddington, J.A., Blackledge, T.A., Agnarsson, I., Framenau, V.W., Szűts, T., Hayashi, C.Y. and Dimitrov, D. (2020) Phylogeny of the orb-weaving spider family Araneidae (Araneae: Araneoidea). *Cladistics, 36*(1): 1-21. https://doi:10.1111/cla.12382

WSC [World Spider Catalog] (2024) World Spider Catalog version 25.0. Natural History Museum Bern. Available from: https://wsc.nmbe.ch/family/108/Uloboridae. Accessed on 4 April 2024.