

First record of *Tidarren cuneolatum* (Tullgren, 1910) from the New World

(Araneae, Theridiidae)

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The theridiid spider *Tidarren cuneolatum* (Tullgren, 1910) is recorded for the first time in America. This invasive and synanthropic species was collected in peri-domiciliary environments from three Venezuelan localities: La Victoria and Maracay, Aragua state (Central region) and San Fernando de Atabapo, Amazonas state (Amazon region). Furthermore, photographs of the sexual body size dimorphism, web and retreat, egg sac, and copulatory organs of this species are provided.

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Introduction

The diverse and globally distributed family Theridiidae comprises 124 genera and 2539 species (World Spider Catalog 2022). Many Theridiidae species have adapted to a wide variety of environments, including synanthropic environments (Nentwig 2015, Bauer et al. 2019). Indeed, several theridiids are among the most successful alien spider species, for example, some species of *Latrodectus* Walckenaer, 1805 (Garb et al. 2004, Bayram et al. 2008, Simó et al. 2013, Ott et al. 2014, Sadir & Marske 2021), *Steatoda* Sundevall, 1833 (Rozwálka 2011, Hörweg & Řezáč 2018), and the monotypic genus *Nesticodes* Archer, 1950 (Levi 1967, Gabriel 2010, Sekhar & Sunil Jose 2017).

The genus *Tidarren* Chamberlin & Ivie, 1934, comprises 24 species mainly distributed in Africa,

but three species are native to America, i.e., *Tidarren haemorrhoidale* (Bertkau, 1880), *T. mixtum* (O. Pickard-Cambridge, 1896), and *T. sisypoides* (Walckenaer, 1841). Among them, only the first has been recorded to Venezuela (Knoflach & van Harten 2006). The synanthropic species *Tidarren cuneolatum* (Tullgren, 1910) was described originally from Tanzania, and has been recorded in other parts of Africa (e.g. Cape Verde), Asia (Yemen) and recently in Europe (Spain) (see Berland 1936, Hernández-Corral & Barrientos 2021a,b, World Spider Catalog 2022).

In the present note, we record for the first time *T. cuneolatum* (Tullgren, 1910) from peri-domiciliary environments from Aragua and Amazonas states, Venezuela. This record represents the first one of this species for the New World.



Fig. 1. *Tidarren cuneolatum* from Aragua state, Venezuela: **A.** female (left) and male (right), exhibiting the difference in size; **B.** male, showing a unique palp after amputation; **C.** female habitus, lateral (arrows indicate the epigynal protuberance and the abdominal dorsal tubercle); **D.** female and eggs sac; **E.** female in the web, showing the typical *Tidarren* web with retreat and debris. **F.** same (general body colour variation), lateral.

Material and methods

The studied specimens were examined submerged in 75% ethanol using a Carl Zeiss Stemi SR stereomicroscope. Male and female genitalia were dissected with fine forceps, and the female genitalia was cleaned with enzymes and then cleared with clove oil. Photographs were made using an Amscope MU500 camera adapted to an Amscope B660B microscope. All specimens examined are deposited in Museo del Instituto de Zoología Agrícola (MIZA), Universidad Central de Venezuela, Maracay, Venezuela, and Colección de Arácnidos e Insectos (CARCIB), Centro de Investigaciones Biológicas del Noroeste S.C., Baja California Sur, Mexico.

Results

Theridiidae Sundevall, 1833
Tidarren Chamberlin & Ivie, 1934

Tidarren cuneolatum (Tullgren, 1910)

Figs 1–2

Theridion cuneolatum Tullgren, 1910: 132, pl. 2, fig. 48.
Theridion chevalieri Berland, 1936: 82, figs 28–29.
Tidarren hagemanni Schmidt, 1956: 146, figs 4–6, 6a.
Tidarren pseudogibberosum Schmidt, 1973: 368, fig. 5.

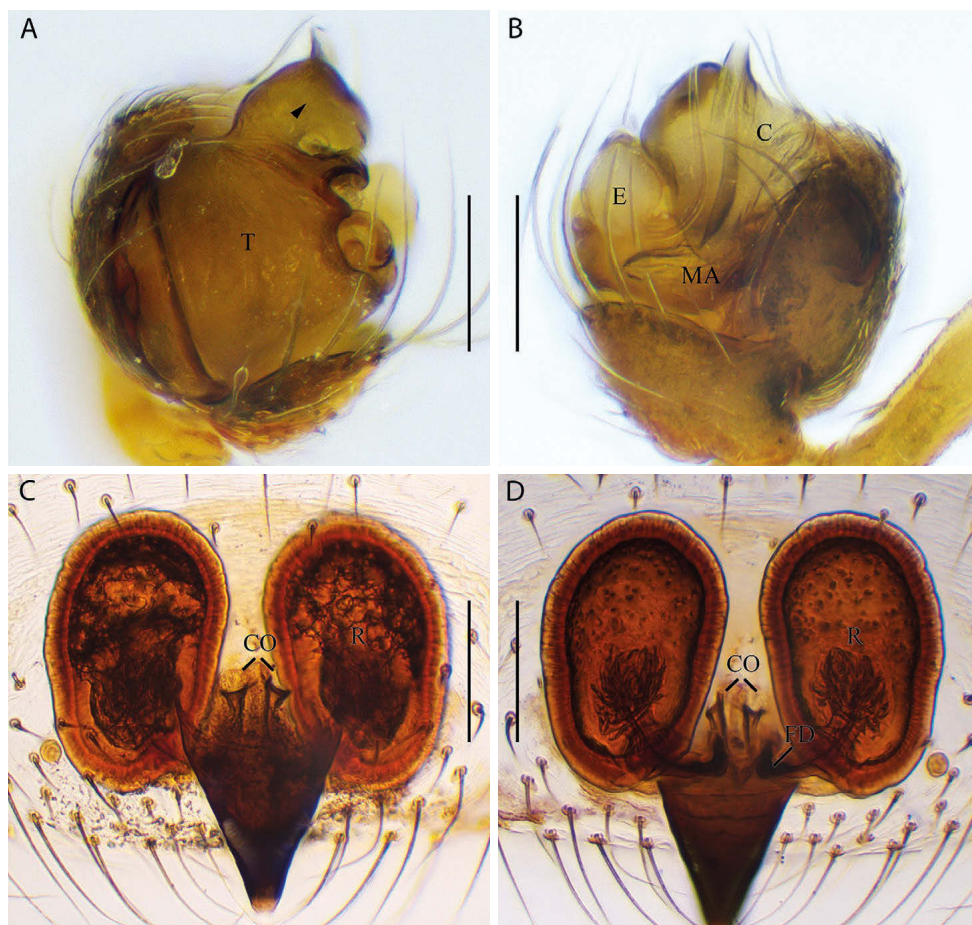


Fig. 2. *Tidarren cuneolatum*: **A.** male palp, prolateral; **B.** same, retrolateral; **C.** epigyne, ventral; **D.** same, dorsal. Scale: 0.10 mm. Abbreviations (mostly follow Knoflach & van Harten 2006): C, conductor; CO, copulatory openings; E, embolus; FD, fertilization ducts; MA, median apophysis; R, receptaculum; T, tegulum (arrow points tegular rim also known as tegular process).

Cryptachaea amilcari Barrientos & Hernández-Corral, in Hernández-Corral & Barrientos, 2021a: 40, figs 3–8. For a complete list of taxonomic references see World Spider Catalog (2022).

Specimens examined: VENEZUELA: Amazonas – San Fernando de Atabapo (4.0460° N, 67.7012° W), 28. VII.2022, Villarreal O., Infante E. leg., between the tree tubular roots, peri-domiciliary ambient, 2 ♀♀ (MIZA 0105850); – same data, 1 ♀ (CARCIB-Ar-4712). Aragua – La Victoria, (10.2327° N, 67.3280° W), [580 m], 24. VI.2022, Villarreal O., Villarreal A. leg., peri-domiciliary ambient, 5 ♀♀, (MIZA 0105851). – same data, 1 ♀, 1 ♂ (CARCIB-Ar-4711); – La Victoria (10.2320° N, 67.3288° W) [580 m], 24. VI.2022, Villarreal O., Manzanilla R. leg., peri-domiciliary ambient, 5 ♀♀, 1 ♂ (MIZA 0105865); – La Victoria, (10.2257° N, 67.3408° W) 550 m, 24. VI.2022, Villarreal O., Manzanilla R. leg., peri-domiciliary ambient,

2 ♀♀ (MIZA 0105893); – Maracay, Facultad de Agronomía, U.C.V. (10.2661° N, 67.6099° W), 26. IX.2022, [440 m], Villarreal O. leg., outer wall of the building, 3 ♀♀, 1 ♂ (MIZA 0105876).

Discussion

According to Knoflach & van Harten (2006), males of *T. cuneolatum* are easily distinguished by the prolateral part of the conductor, and the distal tegular rim forming two distinct processes (compare Fig. 2A vs Knoflach & van Harten 2000: figs 2–3 and Knoflach & van Harten 2006: figs 85–88). The females are distinguished by the long, pointed, and strongly protruding epigynal protuberance (compare Fig. 2C

vs Knoflach & van Harten 2000: fig. 22 and Knoflach & van Harten 2006: figs 95, 98–101). This species has been studied extensively due to the peculiarity of their males, which in addition to being much smaller than females (Fig. 1A,B), amputate one of their palps prior to copulation (Fig. 1B), as other species of the same genus do. The web of *T. cuneolatum* has a retreat, and the females incorporate particles, exuviae, plants and prey remnants (Fig. 1E; Knoflach & van Harten 2000). Moreover, the female remains close to its egg sac (Fig. 1D), which is a parchment-like brown envelope as stated by Knoflach & van Harten (2000). Furthermore, this species and other synanthropic theridiids seem to be accidentally introduced by anthropogenic means, and some can be considered as an invasive species. Therefore, the expansion of the range of non-native species into new areas should be monitored since invasive species can put native species at risk.

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References

- Bauer, T., Feldmeier, S., Krehenwinkel, H., Wiczorrek, C., Reiser, N. & Breitling, R. 2019. *Steatoda nobilis*, a false widow on the rise: a synthesis of past and current distribution trends. *NeoBiota* 42: 19–43.
- Berland, L. 1936. Mission de M. A. Chevalier aux îles du Cap Vert (1934). 1. Araignées. *Revue Française d'Entomologie* 3: 67–88.
- Bayram, A., Danisman, T., Yigit, N., Kunt, K. B. & Sankac, A. 2008. A brown widow spider new for the Turkish araneo-fauna: *Latrodectus geometricus* C. L. Koch, 1841 (Araneae; Theridiidae). *Turkish Journal of Arachnology* 1(1): 98–103.
- Gabriel, G. 2010. *Nesticodes rufipes* – Erstnachweis einer pantropischen Kugelspinne in Deutschland (Araneae: Theridiidae). *Arachnologische Mitteilungen* 39: 39–41.
- Hörweg, C. & Řezáč, M. 2018. Synanthropic is best: *Nuctenea umbratica* (Araneae: Araneidae) and *Steatoda bipunctata* (Araneae: Theridiidae) are the European Spiders of the years 2017 and 2018. *Arachnologische Mitteilungen* 56: 32–35.
- Garb, J. E., González, A. & Gillespie, R. G. 2004. The black widow spider genus *Latrodectus* (Araneae: Theridiidae): phylogeny, biogeography, and invasion history. *Molecular Phylogenetics and Evolution* 31: 1127–1142.
- Hernández-Corral, J. & Barrientos, J. A. 2021a. Arañas (Araneae) de la ciudad de Elche y sus pedanías (Alicante, Comunidad Valenciana, España). *Revista Ibérica de Aracnología* 38: 36–51.
- & Barrientos, J. A. 2021b. Primera cita del género *Tidarren* Chamberlin & Ivie, 1934 (Araneae: Theridiidae) de Europa continental. *Revista Ibérica de Aracnología* 39: 53–54.
- Knoflach, B. & van Harten, A. 2000. Palpal loss, single palp copulation and obligatory mate consumption in *Tidarren cuneolatum* (Tullgren, 1910) (Araneae: Theridiidae). *Journal of Natural History* 34(8): 1639–1659.
- & van Harten, A. 2006. The one-palped spider genera *Tidarren* and *Echinotheridion* in the Old World (Araneae, Theridiidae), with comparative remarks on *Tidarren* from America. *Journal of Natural History* 40(25–26): 1483–1616.
- Levi, H. W. 1967. Cosmopolitan and pantropical species of theridiid spiders (Araneae: Theridiidae). *Pacific Insects* 9: 175–186.
- Nentwig, W. 2015. Introduction, establishment rate, pathways and impact of spiders alien to Europe. *Biological Invasions* 17: 2757–2778.
- Ott, R., Lopes, R. E. N., De Leão M. M. A. 2014. First record of *Latrodectus mirabilis* (Araneae: Theridiidae) from southern Brazil and data on natural history of the species. *Revista Colombiana de Entomología* 40(2): 305–310.
- Rozwałka, R. 2011. *Steatoda triangulosa* (Walckenaer, 1802) (Araneae: Theridiidae) in Poland. *Zeszyty Naukowe Uniwersytetu Szczecińskiego, Acta Biologica* 18: 143–147.
- Sadir, M. & Marske, K. A. 2021. Urban environments aid invasion of brown widows (Theridiidae: *Latrodectus geometricus*) in North America, constraining regions of overlap and mitigating potential impact on native widows. *Frontiers in Ecology and Evolution* 9: 757902. doi: 10.3389/fevo.2021.757902
- Sekhar, R. & Sunil Jose, K. 2017. New distributional records of *Nesticodes rufipes* (Lucas, 1846) in India. *Munis Entomology and Zoology* 12(2): 478–480.
- Simó, M., Dias, M. F. R., Jorge, C., Castro, M., Dias, M. A., Laborda, A. 2013. Habitat, redescription and distribution of *Latrodectus geometricus* in Uruguay (Araneae: Theridiidae). *Biota Neotropica* 13(1): 371–375.
- World Spider Catalog 2022. Version 23.5. Natural History Museum Bern, online at <http://wsc.nmbe.ch> [accessed 05-Oct-2022].

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