

Scientific Note

New state records of the woodlouse spider *Dysdera crocata* C. L. Koch, 1838 (Araneae: Dysderidae) in Mexico

Nuevos registros estatales de la araña caza cochinillas *Dysdera crocata* C. L. Koch, 1838 (Araneae: Dysderidae) en México

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Abstract. The woodlouse spider *Dysdera crocata* C. L. Koch, native to the Old World, is recorded for the Mexican state of Nuevo León via the revision of vouchered specimens; it is also recorded for the states of Baja California, Guanajuato, Hidalgo, San Luis Potosí, and Zacatecas via the revision of photographic records from the citizen science platform iNaturalist; these represent the first records of the species for said states. A brief diagnosis is provided for the family and the species.

Key words: Exotic species; geographic distribution; introduced species.

Resumen. La araña caza cochinillas *Dysdera crocata* C. L. Koch (Araneae: Dysderidae), nativa del Viejo Mundo, se registra para el estado mexicano de Nuevo León a través de la revisión de especímenes; también se registra para los estados de Baja California, Guanajuato, Hidalgo, San Luis Potosí y Zacatecas a través de la revisión de registros fotográficos de la plataforma de ciencia ciudadana iNaturalist; estos representan los primeros registros de esta especie para dichos estados. Se proporciona una breve diagnosis de la familia y la especie.

Palabras clave: Distribución geográfica; especies exóticas; especies introducidas

The members of the family Dysderidae (Arachnida: Araneae) are ecribellate, haplogyne, six-eyed, araneomorph spiders which have two or three tarsal claws, tracheal spiracles close to the epigastric furrow, and free chelicerae which can be very prominent in some species (Jocqué and Dippenaar-Schoeman 2007; Ubick 2017c). This family is currently comprised by 25 genera and 590 species, all of which are native to the Old World (World Spider Catalog 2022). There were records of three species of this family from the New World: *Dysdera crocata* C. L. Koch, 1838, a widespread and introduced European species; *Dysdera magna* Keyserling, 1877 from South America (Keyserling 1877) and *Dysdera solers* Walckenaer, 1837, also from South America (Walckenaer 1837). Řezáč *et al.* (2008) synonymized *D. magna* under *D. crocata* and proposed that *D. solers* is a misidentified Caponiidae, given the morphological characteristics mentioned by Walckenaer (1837); this leaves *D. crocata* as the only representative of its family in the Western Hemisphere.

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Dysdera crocata is widely distributed in the Nearctic region (Ubick 2017c), however, it has only been formally mentioned for Mexico in two previous works, particularly, for the states of Ciudad de México (Durán-Barron *et al.* 2009) and Estado de México (Desales-Lara 2014). Two physical vouchers of *D. crocata* from Nuevo León are present in the Arachnological Collection of the Facultad de Ciencias Biológicas of the Universidad Autónoma de Nuevo León; they were determined using the keys and descriptions of Jocqué and Dippenaar-Schoeman (2007) and Ubick (2017a, 2017c). Mexican records from the citizen science platform iNaturalist (2022) were consulted the 7th and 8th of April 2022 and corroborated by checking the more prominent characteristics of the species: six eyes arranged in a semicircle (Figs. 1A, C), a reddish prosoma and an also cream-colored opisthosoma, both concolorous and lacking pattern (Figs. 1A-C), and sickle-like chelicerae (Figs. 1A-B) (Jocqué and Dippenaar-Schoeman 2007; Ubick 2017c). This resulted in 274 confirmed observations of *D. crocata* for the country, including 31 from Baja California, one from Guanajuato, 41 from Hidalgo, two from San Luis Potosí, and six from Zacatecas, which constitute new state records for the species (Fig. 2).

***Dysdera crocata* C. L. Koch, 1838**
(Figs. 1A-D, 2)

Diagnosis. Based in the works of Cognato and O'Brien (2013), Jocqué and Dippenaar-Schoeman (2007) and Ubick (2017c). The cribellate araneomorph spiders of the family Dysderidae possess six eyes which are arranged closely together, the anterior median eyes are absent (Figs. 1A, 1C); in *Dysdera*, the eyes form a semicircle which opens anteriorly (Figs. 1A, 1C). Female Dysderidae lack a sclerotized epigynum (haplogyne condition) (Fig. 1B); male Dysderidae lack tarsal spoon-shaped cymbium which covers the rest of the tarsus of the pedipalp (haplogyne condition) (Fig. 1D). There is a pair of tracheal spiracles near the epigastric furrow (all Dysderidae) (Fig. 1B). The number of tarsal claws in Dysderidae varies from two to three, but the species in the genus *Dysdera* only have two. All these characters set Dysderidae, and by default its only North American representative, *D. crocata*, apart from the rest of the North American spider families, with the exception of those in the family Segestriidae, from which *D. crocata* differs in the number of tarsal claws (three in all Segestriidae); the morphology of the chelicerae (in *Dysdera* they are sickle-shaped and very prominent) (Figs. 1A-B); and the direction of legs III (anteriorly directed in all Segestriidae and posteriorly directed in all Dysderidae) (Fig. 1B). *Dysdera crocata* in particular has a very conspicuous coloration: the prosoma is reddish while the opisthosoma is cream-colored, both are concolorous and lack pattern (Figs. 1A-B).

Material examined. *Dysdera crocata*. **MEXICO. Nuevo León.** 1 male, 2 females, Municipality of San Nicolás de los Garza, 25°42'51.4"N, 100°18'51.2"W, 529 m.a.s.l., city park, 12-II-2014, col. Greta Rebeca Nuñez Guzmán (FCB-AHAPL001). 1 female, Municipality of San Pedro Garza García, 25°41'2.5"N, 100°23'54.2"W, 856 m.a.s.l., thornscrub, 20-I-2013, col. Isaac Fernando Vázquez Domínguez (FCB-AHALP001).

Photographic records (iNaturalist). *Dysdera crocata*. **MEXICO. Baja California.** Municipality of Ensenada, 32°05'14.7"N, -116°37'18.3"W, 3-III-2022, photo by "angel243". Municipality of Tijuana, 32°28'25.0"N, -116°48'06.9"W, 30-I-2022, photo by "mario770". Municipality of Ensenada, 31°50'38.0"N, 116°29'50.8", 19-II-2022, photo by "vvallec11". Municipality of Ensenada, 31°52'35.4"N, 116°40'43.3", 10-XII-2021, photo by "c_meling". Municipality of Tijuana, 32°30'30.4"N, 116°58'24.3"W, 27-VII-2021, photo by "sarg67". Municipality of Ensenada, 31°52'06.4"N, 116°38'36.5"W, 8-VI-2021, photo by "joseluisrc". Municipality of Playas de Rosarito, 32°15'02.6"N, 116°55'44.0"W, 21-IV-2021, photo by "joscob". Municipality of Ensenada, 31°45'38.8"N, 116°35'40.6"W, 10-III-2021, photo by "juan0102". Municipality of

Ensenada, 31°24'37.2"N, 116°19'22.2"W, 6-III-2021, photo by "jhvaldez_tutor". Municipality of Tijuana, 32°31'16.4"N, 117°06'16.5"W, 1-II-2021, photo by "bartimeo". Municipality of Tijuana, 32°28'44.5"N, 116°59'34.8"W, 24-XII-2020, photo by "veroub". Municipality of Ensenada, 31°54'12.8"N, 116°36'28.9"W, 11-XII-2020, photo by "e-meling". No specific locality or coordinates given, no date, photo by "kevinplantas". Municipality of Ensenada, 31°52'06.3"N, 116°38'36.2"W, 1-X-2020, photo by "joseluisrc". Municipality of Ensenada, 31°52'07.1"N, 116°35'28.2"W, 27-VIII-2020, photo by "chaberguez". Municipality of Tijuana, 32°27'31.1"N, 116°58'52.6"W, 21-VII-2020, photo by "alpher33". Municipality of Tijuana, 32°28'20.6"N, 117°02'22.7"W, 25-VI-2020, photo by "alejomez". Municipality of Playas de Rosarito, 32°24'17.5"N, 117°04'01.6"W, 19-V-2020, photo by "marioxd9". Municipality of Tecate, 32°34'04.0"N, 116°38'29.0"W, 10-V-2020, photo by "albertostyrone". Municipality of Ensenada, 30°31'24.2"N, 115°56'51.0"W, 26-IV-2020, photo by "salmabautista". Municipality of Ensenada, 31°55'30.4"N, 116°31'39.0"W, 16-III-2020, photo by "e-meling". Municipality of Ensenada, 31°54'32.2"N, 116°44'29.6"W, 3-I-2020, photo by "e-meling". Municipality of Ensenada, 31°54'16.7"N, 116°36'27.8"W, 8-XII-2019, photo by "e-meling". Municipality of Ensenada, 31°52'36.1"N, 116°39'13.5"W, 13-IX-2019, photo by "analexana". Municipality of Ensenada, 32°05'13.0"N, 116°52'41.9"W, 13-VIII-2019, photo by "dianiiz8". Municipality of Ensenada, 31°48'29.3"N, 116°35'14.5"W, 21-III-2019, photo by "jhvaldez_tutor". Municipality of Ensenada, 31°52'36.9"N, 116°39'13.6"W, 30-I-2019, photo by "arel". Municipality of Tijuana, 32°27'36.3"N, 116°56'19.3"W, 30-XI-2016, photo by "guillermoonate". Municipality of Ensenada, 31°47'00.1"N, 116°36'25.6"W, 12-XI-2016, photo by "lchdezs". Municipality of Tijuana, 32°28'43.6"N, 117°04'06.3"W, 16-VI-2016, photo by "bryanmezaarachnid". Municipality of Ensenada, 31°52'08.9"N, 116°38'32.7"W, 8-IV-2014, photo by "medellin_ortiz". **Guanajuato.** Municipality of San Miguel Allende, 20°53'44.1"N, 100°43'16.3"W, 14-XII-2020, photo by "kikecordova". **Hidalgo.** Municipality of Mineral de la Reforma, 20°03'41.1"N, 98°46'24.9"W, 9-IV-2022, photo by "astridluna". Municipality of Pachuca de Soto, 20°02'10.9"N, 98°47'12.8"W, 24-XI-2021, photo by "mkevin". Municipality of Mineral de Reforma, 20°06'39.9"N, 98°42'54.2"W, 8-XI-2021, photo by "diegot4vera". Municipality of Pachuca de Soto, 20°02'42.7"N, 98°47'10.4"W, 23-X-2021, photo by "alinaannette28". Municipality of Santiago Tulantepec, 20°01'57.2"N, 98°21'04.1"W, 11-IX-2021, photo by "emilian_jh". Municipality of Pachuca de Soto, 20°05'36.0"N, 98°46'42.8"W, 19-VIII-2021, photo by "troi_olivares". Municipality of Pachuca de Soto, 20°05'15.1"N, 98°45'44.6"W, 20-VIII-2021, photo by "muratallareyes". Municipality of Zempoala, 20°01'18.1"N, 98°47'11.1"W, 5-VII-2021, photo by "nahual27". Municipality of Zempoala, 20°01'16.0"N, 98°47'36.8"W, 26-VII-2021, photo by "ovcj". Municipality of Pachuca de Soto, 20°03'08.1"N, 98°46'53.3"W, 18-VII-2021, photo by "christopher_cervantes". Municipality of Pachuca de Soto, 20°08'02.2"N, 98°45'25.8"W, 13-VII-2021, photo by "natalia_bautista". Municipality of Mineral de Reforma, 20°04'37.3"N, 98°44'18.5"W, 5-VII-2021, photo by "noemi_07". Municipality of Pachuca de Soto, 20°05'52.7"N, 98°47'16.6"W, 22-VI-2021, photo by "natrmz". Municipality of Huichapan, 20°22'42.0"N, 99°38'25.4"W, 18-IV-2021, photo by "sichem_izael". Municipality of Zempoala, 20°01'07.4"N, 98°47'15.5"W, 29-III-2021, photo by "ovcj". Municipality of Pachuca de Soto, 20°06'59.5"N, 98°46'10.5"W, 16-II-2021, photo by "jessica_davila". Municipality of Zempoala, 20°01'07.0"N, 98°47'15.6"W, 3-III-2021, photo by "ovcj". Municipality of Mineral de la Reforma, 20°02'30.2"N, 98°42'25.0"W, 29-X-2020, photo by "maradeluna". Municipality of Pachuca de Soto, 20°02'40.5"N, 98°47'14.8"W, 5-II-2021, photo by "jesusperezg". Municipality of Pachuca de Soto, 20°02'40.5"N, 98°47'14.8"W, 23-I-2021, photo by "paulina_sermar". Municipality of Zempoala, 20°01'08.3"N, 98°47'16.0"W, 16-I-2021, photo by "ovcj". Municipality of Pachuca de Soto, 20°02'58.5"N, 98°46'35.4"W, 13-IX-2019, photo by "yoalas_1901". Municipality of Pachuca de Soto, 20°03'11.9"N, 98°46'57.7"W, 23-VII-2019, photo by "cibeteta". Municipality of Mineral de la Reforma, 20°02'28.0"N, 98°42'35.8"W, 1-VI-2019, photo by "cris-tzabcan". Municipality of Pachuca de Soto, 20°07'37.3"N, 98°44'51.7"W, 26-IV-2019, photo by "cris-tzabcan". Municipality of Pachuca de Soto, 20°03'58.4"N, 98°46'43.7"W, 6-VI-2018, photo

by "jesusperezg" (duplicated three times in the platform). Municipality of Pachuca de Soto, 20°07'00.2"N, 98°43'09.1"W, 7-IV-2018, photo by "jcm99". Municipality of Tula de Allende, 20°00'37.3"N, 99°20'56.5"W, 16-VI-2020, photo by "cecelic". Municipality of Tulancingo de Bravo, 20°03'56.1"N, 98°24'13.3"W, 21-V-2020, photo by "raquelnb". Municipality of Pachuca de Soto, 20°05'47.5"N, 98°42'26"W, 6-VII-2020, photo by "den_hernandez". Municipality of Pachuca de Soto, 20°03'53.3"N, 98°47'46"W, 27-I-2020, photo by "antoniogil". Municipality of Pachuca de Soto, 20°06'25.3"N, 98°43'17.4"W, 17-IV-2022, photo by "suaki". **San Luis Potosí.** No specific locality or coordinates given, 28-XII-2020, photo by "gabrielbcriril". No specific locality or coordinates given, 16-VIII-2020, photo by "posadas". **Zacatecas.** Municipality of Zacatecas, 22°45'40.2"N, 102°33'6.7"W, 10-I-2022, photo by "mariajose60". Municipality of Zacatecas, no coordinates given, 28-VI-2021, photo by "jairolv". Municipality of Guadalupe, 22°45'42.6"N, 102°30'8.1"W, 1-II-2021, photo by "angeldq". Municipality of Guadalupe, 22°45'13.3"N, 102°29'43.9"W, 14-VIII-2020, photo by "gerson28". Municipality of Guadalupe, 22°45'36.2"N, 102°31'7.7"W, 3-VIII-2020, photo by "rubbilc". Municipality of Guadalupe, 22°29'53"N, 102°32'13"W, 16-V-2020, photo by "emanuel33".

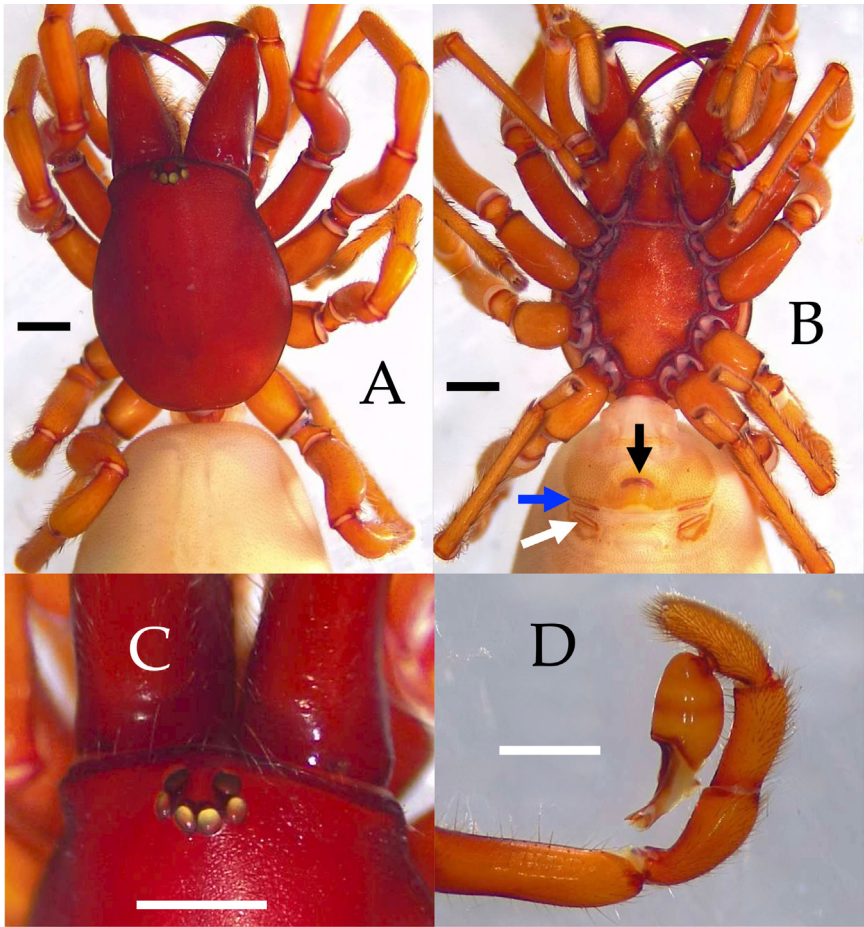


Figure 1. *Dysdera crocata* from Nuevo León, Mexico; all scale bars: 1 mm. A. Dorsal view of adult female. B. Ventral view of adult female; black arrow points to the genitalia; blue arrow points to a spiracle which leads to a booklung; white arrow points to a spiracle which leads to a trachea. C. Eye arrangement. D. Pedipalp of adult male. / *Dysdera crocata* de Nuevo León, México; todas las barras de escala: 1 mm. Vista dorsal de hembra adulta. B. Vista ventral de hembra adulta; flecha negra señala los genitales; flecha azul señala el espiráculo que conduce a un pulmón de libro; flecha blanca señala el espiráculo que conduce a una tráquea. C. Arreglo ocular. D. Pedipalpo del macho adulto.

In the process of corroborating the Mexican observations of *D. crocata* in the iNaturalist platform, specimens of two spider families were commonly seen being misidentified as this species, these being Caponiidae and Trachelidae. Neither family has such prominent sickle-like chelicerae, and neither has six eyes: North American Caponiidae have two, four, or eight eyes (Jiménez *et al.* 2011; Jocqué and Dippenaar-Schoeman 2007; Ubick 2017b), whilst all Trachelidae have eight eyes (Richman 2017); the confusion seems to arise in the somewhat similar coloration and lack of pattern.

Dysdera crocata had been reported for Mexico for the states of México and Ciudad de México (Desales-Lara 2014; Durán-Barron *et al.* 2009) (Fig. 2); with the records presented in this publication, it is newly reported for the states of Baja California, Guanajuato, Hidalgo, Nuevo León, San Luis Potosí, and Zacatecas (Fig. 2). While the photographic records of spiders present in citizen science platforms often cannot be confidently identified to species level due to the need of dissection and examination of specific structures, some species with notorious external characters are the exception; *D. crocata*, the only North American representative of its family, with its conspicuous coloration and sickle-like chelicerae, is one of them. While the collection of more specimens of *D. crocata* is still desired and needed, we hold the opinion that photographic records of *D. crocata* are enough to confidently record this species, making citizen science platforms such as iNaturalist a valuable tool to assess its distribution. Some specimens seen in the iNaturalist platform had what appeared to be a very diffuse pattern in the opisthosoma, but this could well be due to the effect of the light in which the specimens were photographed; no other variation among specimens was noted.

Species of the genus *Dysdera*, including *D. crocata*, do not show a behavior called ballooning, meaning its dispersive capabilities are limited, however, they are prone to passive accidental transport due to their tendency to attach themselves to large objects in the ground (Cognato and O'Brien 2013); this would explain why a species with such low vagility is capable to have such a wide range of distribution in a geographic realm far from its own. While all the records taken from the iNaturalist platform were from parks, gardens, and houses, in or around cities, a record from the municipality of San Pedro Garza García in Nuevo León is from unaltered thornscrub habitat, raising the question on whether *D. crocata* can establish itself in unaltered habitats in Mexico.

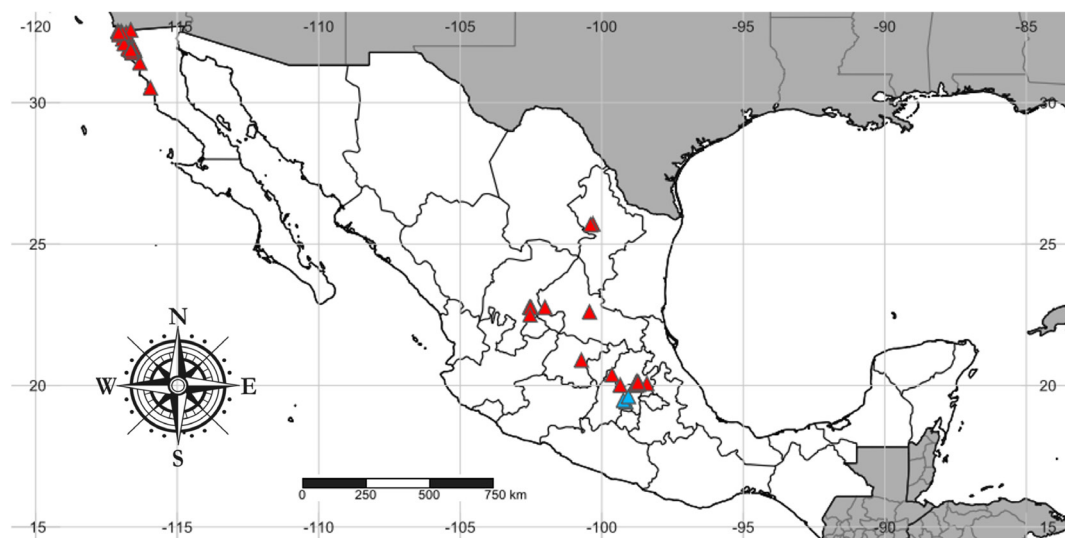


Figure 2. Records of *Dysdera crocata* in Mexico. New records represented with red triangles. Old records represented with blue triangles. / Registros de *Dysdera crocata* en México. Nuevos registros representados con triángulos rojos. Registros previos representados por triángulos azules.

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