Acta Zoológica Mexicana (nueva serie), 2025, Volumen 41, 1–9.
https://doi.org/10.21829/azm.2025.4112787
https://zoobank.org/urn:lsid:zoobank.org:pub:36BEA511-AEAA-4327-BBFF-DD5480FAE08A

Original article

OPEN ACCESS

Updating the distribution of the Mexican cockroach *Homoeogamia mexicana* Burmeister, 1838 (Blattodea, Corydiidae)

Actualización de la distribución de la cucaracha mexicana *Homoeogamia mexicana* Burmeister, 1838 (Blattodea, Corydiidae)

REINIER NÚÑEZ-BAZÁN[1,2,6*], DARYL D. CRUZ[1], JULIO C. ESTRADA-ÁLVAREZ[2,3], MANUEL DE LUNA[2,4,5], ELIZABETH ARELLANO[1]

[1]Centro de Investigación en Biodiversidad y Conservación, Universidad Autónoma del Estado de Morelos, Av. Universidad No. 1001, Col. Chamilpa, Cuernavaca, Morelos C.P. 62209, México.
[2]Entomological Research, A.C., Metepec, Bo. San Mateo, Estado de México, México.
[3]Museo Universitario de Historia Natural Dr. Manuel M. Villada UAEMex, Inst. Literario 100, Colonia Centro, Toluca, Estado México C.P. 50000, México.
[4]Instituto de Biología, Universidad Nacional Autónoma de México, Tercer Circuito, Ciudad Universitaria Coyoacán, Ciudad de México, C.P. 04510, México.
[5]Facultad de Ciencias Forestales, Universidad Autónoma de Nuevo León, Carretera a Ciudad Victoria km 145, C.P. 67700, Linares, Nuevo León, México.
[6]Doctorado en Ciencias Naturales, Facultad de Ciencias Biológicas, Universidad Autónoma del Estado de Morelos.

Acta Zoológica Mexicana (nueva serie)

*Corresponding author:
Reinier Núñez-Bazán
rnbazan7@gmail.com

How to cite:
Núñez-Bazán, R., Cruz, D. D., Estrada-Álvarez, J. C., De Luna, M., Arellano, E. (2025) Updating the distribution of the Mexican cockroach *Homoeogamia mexicana* Burmeister, 1838 (Blattodea, Corydiidae). *Acta Zoológica Mexicana (nueva serie)*, 41, 1–9.

10.21829/azm.2025.4112787
elocation-id: e4112787

Received: 15 July 2025
Accepted: 27 October 2025
Published: 21 November 2025

Responsible editor: Magdalena Cruz Rosales

ABSTRACT. Sand cockroaches are among the least studied groups of Blattodea. In North America, this family comprises eight genera, with the subfamily Corydiinae only represented

by three genera: *Homoeogamia*, *Arenivaga*, and *Eremoblatta*. *Homoeogamia* is the only monotypic and strictly Mexican genus, but its species is widely distributed across central Mexico. This study aims to update the known distribution of the species through a review of published records, verified collections specimens, and photographic observations from the citizen science platform iNaturalist. Additionally, we complemented our data with a collection of new specimens. The updated distribution includes 36 new locality records across five previously undocumented states, expanding the known distribution range of *H. mexicana* to 19 Mexican states.

Key words: Citizen Science; Corydiinae; distribution; iNaturalist; populations; sand roaches

RESUMEN. Las cucarachas de arena se encuentran entre los grupos menos estudiados de Blattodea. En América del Norte, esta familia comprende ocho géneros, de los cuales la subfamilia Corydiinae está representada únicamente por tres: *Homoeogamia*, *Arenivaga* y *Eremoblatta*. *Homoeogamia* es el único género monoespecífico y estrictamente mexicano, aunque su especie está ampliamente distribuida en el centro de México. El objetivo de este estudio es actualizar la distribución conocida de la especie mediante la revisión de registros publicados, especímenes verificados en colecciones, y observaciones fotográficas provenientes de la plataforma de ciencia ciudadana iNaturalist. Adicionalmente, complementamos los datos con la recolección de ejemplares nuevos. La distribución actualizada incluye 36 nuevos registros de localidad en cinco estados previamente no documentados, lo que amplía el rango de distribución conocido de *H. mexicana* a 19 estados mexicanos.

Palabras clave: Ciencia ciudadana; Corydiinae; cucarachas de arena; distribución; iNaturalist; poblaciones

INTRODUCTION

Sand cockroaches, as they are commonly known, are members of the Corydiidae family, described by Saussure in 1864 (Insecta: Blattodea), and are one of the least studied groups within this order. The primary reason for their scarce collection and the almost nonexistent studies on their ecology and behavior is their cryptic lifestyle (Qiu *et al*., 2018). Most species in this group live between or beneath loose substrates, such as sand and dust, while others are specialists or opportunists in the nests of social insects and rodents (Roth & Willis, 1960; Bell *et al*., 2007). In North America, this family is represented by 65 species, grouped into eight genera and three subfamilies (Atkinson *et al*., 1991; Estrada-Álvarez, 2013; Beccaloni, 2014). The subfamily Corydiinae is represented in this region by three genera: *Homoeogamia* Burmeister, 1838; *Arenivaga* Rehn, 1903; and *Eremoblatta* Rehn, 1903 (Estrada-Álvarez *et al*., 2022). From this, the only monotypic and strictly Mexican genus is *Homoeogamia*. Although, as mentioned by Núñez-Bazán *et al*. (2024), there are few unconfirmed records outside of Mexico, and niche differences among their populations that could suggest the existence of cryptic species and a broader distribution range.

Homoeogamia mexicana Burmeister, 1838 is a medium-sized cockroach with both sexes winged (tegmina and wings present), but dimorphic, with a preference for higher and colder areas (for more details, see Núñez-Bazán *et al*., 2024). This species is widely distributed across Mexico, primarily inhabiting the central region, with its range extending north and south, with a few

scattered records (Fig. 1). Records exist for 14 of the 33 Mexican states. This contribution aims to update the distribution range of *H. mexicana* including new localities and state records.

MATERIALS AND METHODS

To obtain the presence data, all published records of the species were reviewed and compared with preserved specimens housed in the Colección Nacional de Insectos (CNIN), from Instituto de Biología de la Universidad Nacional Autónoma de México, the Entomological Collection of the American Museum of Natural History (AMNH), the Colección de Insectos del Museo de Historia Natural y Cultura "Alfredo Barrera" and the entomological collection held at the Laboratorio de Entomología of the Facultad de Ciencias Forestales of the Universidad Autónoma de Nuevo León. Additionally, all records (July 25, 2024) were reviewed on the citizen science platform iNaturalist (https://www.inaturalist.org/home). The reported locations were corrected, and the database was cleaned, removing duplicates. On the other hand, we collected 15 males from Reserva de la Biosfera "El Cielo" in Tamaulipas, which constitutes the first records of the species for this entity and the impetus for carrying out this work. Finally, a distribution map was created using ARCGIS 10.8 software (ESRI, 2020). Conversely, four questionable records from the states of Sonora, Durango, Veracruz, and Chiapas, previously reported by Núñez-Bazán *et al*. (2024), were included in the distribution map. The record attributed to Sonora, although within the known distribution range, lacks a specific locality and was therefore excluded from the map but still considered in the overall assessment.

RESULTS

In this contribution, the known range of the species is updated to five additional Mexican states (Fig. 1), bringing the total to 19, with 36 new locality records: Aguascalientes (6), Querétaro (8), Tamaulipas (1), Tlaxcala (14), and Zacatecas (7). These results are based on the review of 48 citizen science records and 40 specimens deposited in entomological collections.

Order Blattodea Brunner von Wattenwyl, 1882

Suborder Blattaria Burmeister, 1829 (*sensu* Klass & Meier, 2006)

Superfamily Corydioidea Saussure, 1864

Family Corydiidae Saussure, 1864

Subfamily Corydiinae Saussure, 1864

Genus *Homoeogamia* Burmeister, 1838

Homoeogamia mexicana Burmeister, 1838

Known distribution in Mexico (Rehn, 1903; Estrada-Álvarez, 2013; Núñez-Bazán *et al*., 2021; Estrada-Álvarez *et al*., 2022).

Ciudad de México: Coyoacán, C. U. UNAM (Instituto de Biología, Jardín Botánico), Miguel Hidalgo, Tacubaya; Azcapotzalco, Azcapotzalco. **Durango state:** San Dimas, Villa Corona (=Ventanas). **Guerrero state:** Pilcaya, Parque Nacional Grutas de Cacahuamilpa; Chilpancingo de los Bravo, Parque Ecológico Estatal Omiltemi. **Guanajuato state:** Acámbaro, Acámbaro; Guanajuato, Guanajuato. **Hidalgo state:** Cuevas (ambiguous locality); Actopan, Actopan; Alfajayucan, Donguiñyo; Santiago de Anaya, Santiago de Anaya Centro; Zempoala. **Jalisco state:** Guadalajara, Guadalajara, Teocaltiche, Huejotitlán. **Estado de México:** Cuevas (ambiguous locality), Tonatico,

Grutas de la Estrella; Metepec, Metepec; Ocoyoacac, Ocoyoacac; Toluca, Edificio de Rectoría UAEMex. **Michoacán state:** Cuevas (ambiguous locality); Uruapan, Uruapan del Progreso. **Morelos state:** Cuernavaca, Sta. María Ahuacatitlán. **Oaxaca state:** Oaxaca de Juárez, Oaxaca de Juárez. **Puebla state:** Puebla, Heroica Puebla de Zaragoza; Zacapoaxtla, Sierra de Zacapoaxtla. **Sinaloa state:** no more data. **San Luis Potosí state**: Tamuín, Cueva de los Monos. **Veracruz state:** Sierra Madre Oriental; Orizaba, Orizaba; Córdoba, Córdoba; Xalapa, Xalapa-Enríquez.

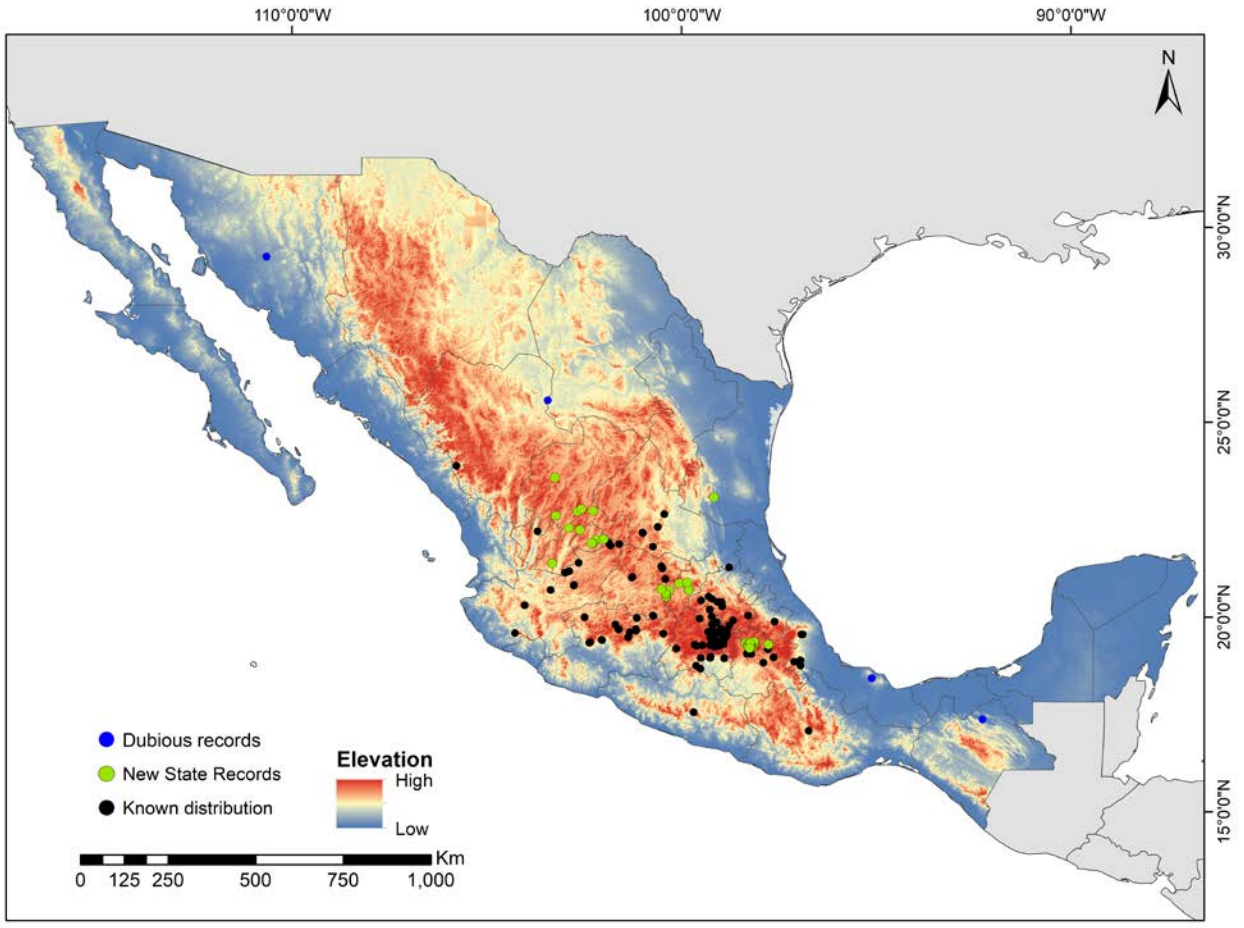

Figure 1. Distribution of *Homoeogamia mexicana* Burmeister, 1838 (Corydiidae: Blattodea) including new state records and dubius records.

New state records (Fig. 1):

AGUASCALIENTES (Fig. 2h-j).

Photographic records • ♀; Municipality of Aguascalientes; 21.97946, -102.19476; 24 Jul. 2024; recorded by "mvgr". • ♂; Municipality of Aguascalientes, Ferronales Colony; 21.88836, -102.27734; 25 May 2023; recorded by "mcorogu". • Juvenile; Municipality of Aguascalientes, Ferronales Colony; 21.88774, -102.27818; 1 Aug. 2022; recorded by "Karla Julissa". • ♂; Municipality of Aguascalientes, Carlos Sagredo 509; 21.89223, -102.30513; 8 Aug. 2021; recorded by "oscar4930". • Juvenile; Municipality of Aguascalientes, San José de Gracia; 22.23498, -102.60681; 21 Jul. 2010; recorded by "Luis Felipe Lozano Román". • ♀; Municipality of El Llano; 21.99796, -101.99662; 7 Nov. 2022; recorded by "mvgr".

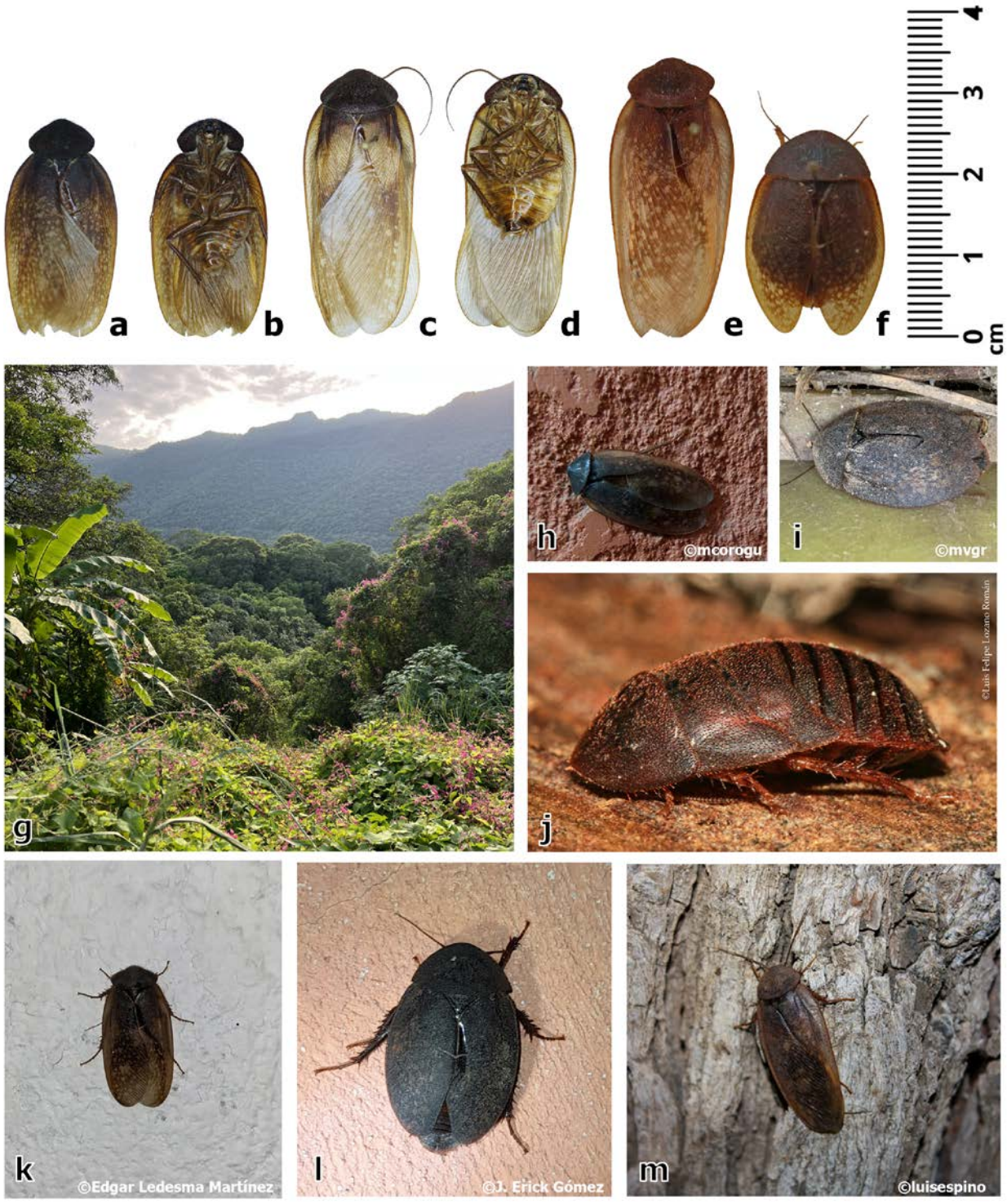

Figure 2. Representation of *Homoeogamia mexicana* Burmeister, 1838 (Corydiidae: Blattodea) specimens from the new locations. Material examined: Dorsal (**a**) and ventral (**b**) view of a male from Tamaulipas and the collection site (**g**). Dorsal (**c**) and ventral (**d**) view of a male from Querétaro. Dorsal view of a male (**e**, photo modified from the AMNH database) and a female (**f**) from Zacatecas. Photographic records from iNaturalist: male (**h**), female (**i**), and juvenile (**j**) from Aguascalientes. Male (**k**) and female (**l**) from Tlaxcala. Male (**m**) from Zacatecas.

QUERÉTARO (Fig. 2c, d).

Material examined • ♂; Municipality of Santiago de Querétaro, 8 km N of San Pablo; 20.8852, -99.85158; 4-5 Jun. 2019; Cushing *et al*. leg.; CNIN.

Photographic records • ♂; Municipality of Cadereyta de Montes, City center; 20.69533; -99.81253; 24 Jun. 2024; recorded by "José Belem Hernández Díaz". • ♂; Municipality of El Marqués, Zibatá 76269; 20.6815, -100.31233; 15 Apr. 2024; recorded by "fulvio_menconi". • ♀; Municipality of Cadereyta de Montes, City center; 20.69546, -99.81253; 13/X/2023, recorded by "José Belem Hernández Díaz". • ♀, Municipality of Colón, Salitrera 76276 (20.8595; -100.05774), 8/VII/2023, recorded by "Bety Capetillo". • Juvenile, Municipality of Corregidora, Residential subdivision Vista Real; 20.52212, -100.38807; 19 Oct. 2023; recorded by "Coronado Govaerts". • Juvenile; Municipality of Cadereyta de Montes; 20.69535, -99.81271; 14 Mar. 2016; recorded by "José Belem Hernández Díaz". • ♂; Municipality of Cadereyta de Montes, City center 76500; 20.69523, -99.81268; 4 Aug. 2019; recorded by "José Belem Hernández Díaz". • ♂; Municipality of Cadereyta de Montes, City center 76500; 20.69523, -99.81268; 4 Aug. 2019; recorded by "José Belem Hernández Díaz". • ♂; Municipality of Cadereyta de Montes, City center 76500 (20.69525; -99.81267), 30/V/2019, recorded by "José Belem Hernández Díaz". • ♀, Municipality of Cadereyta de Montes, City center 76500; 20.6967, -99.8189; 17 May 2018; recorded by "Opuntia Cadereytensis". • ♂; Municipality of Cadereyta de Montes, City center 76500; 20.69525, -99.81267; 22 May 2017; recorded by "José Belem Hernández Díaz". • ♂; Municipality of Corregidora, Residential subdivision Vista Real, 76905; 20.5221, -100.38811; 20 Apr. 2022; recorded by "Coronado Govaerts". • ♂; Municipality of Corregidora, Residential subdivision Vista Real, 76905; 20.52205, -100.38806; 16 Apr. 2022; recorded by "Coronado Govaerts". • ♂; Municipality of Corregidora; 20.52217, -100.38794; 4 Oct. 2019; recorded by "Coronado Govaerts". • ♂; Municipality of Corregidora, Residential subdivision Vista Real; 20.52254, -100.38848; 9 Apr. 2019; recorded by "Coronado Govaerts". • Juvenile; Municipality of Santiago de Querétaro, Santiago de Querétaro; 20.58879, -100.38989; 22 Nov. 2021; recorded by "Salvador López Mendoza". • Juvenile; Municipality of Santiago de Querétaro, Santiago de Querétaro; 20.58879, -100.38989; 19 Nov. 2021; recorded by "borja mandaluniz zuzaeta". • ♂; Municipality of Santiago de Querétaro, Santiago de Querétaro, 76130; 20.61341, -100.40784; 12 May 2017; recorded by "nadia_k". • Juvenile; Municipality of Santiago de Querétaro, Santiago de Querétaro; 20.58879, -100.38989; 14 Feb. 2021; recorded by "gool00".

TAMAULIPAS (Fig. 2a, b, g).

Material examined • 7♂; Municipality of Gómez Farías, Reserva de la Biósfera "El Cielo"; 15 Jul. 2021; M. de Luna leg.; FCF-BLATT029. • ♂; Municipality of Gómez Farías, Reserva de la Biósfera "El Cielo"; 23.0715, -99.1640; 24 Oct. 2020; R. García Barrios leg.; FCF-BLATT079. • ♂; same locality; 15 Jun. 2021; M. de Luna leg.; FCF-BLATT088. • 3♂; same locality; 15 Sep. 2020; M. de Luna leg.; FCF-BLATT110. • ♂; same locality; 15 Nov. 2020; M. de Luna leg.; FCF-BLATT120. • ♂; same locality; 15 Aug. 2020; M. de Luna leg.; FCF-BLATT120. • ♂; same locality; 15 Aug.2020; M. de Luna leg.; FCF-BLATT121.

TLAXCALA (Fig. 2K, L).

Photographic records • ♂; Municipality of Chiautempan; 19.30821, -98.20353; 14 May 2020; recorded by "Cecilia Cuatianquiz Lima". • ♂; Municipality of Contla de Juan Cuamatzi, San Felipe Cuauhtenco; 19.31555, -98.12247; 19 Sep. 2016; recorded by "consueloflores53_". • ♀; Municipality of Cuapiaxtla, Calle Hermenegildo Galeana; 19.29464, -97.76417; 11 Apr. 2023; recorded by

"britobar-ubbj". • ♂; Municipality of Ixtacuixtla de Mariano Matamoros, 90120 Santa Cruz el Porvenir; 19.33239, -98.35021; 6 Jun. 2024; recorded by "Arturo Estrada". • ♀; Municipality of Panotla; 19.30691, -98.28901; 13 Dec. 2022; recorded by "Wendy Padron". • ♂; Municipality of San Jerónimo Zacualpan; 19.24865, -98.249; 20 Sep. 2020; recorded by "Axl Hernández". • ♂; Municipality of Santa Cruz Tlaxcala, Segunda Privada Corregidora; 19.36754, -98.13411; 8 Jun. 2022; recorded by "Edgar Ledesma Martínez". • Juvenile; Municipality of Santa Cruz Tlaxcala, San Miguel Contla; 19.36499, -98.13119; 6 Nov. 2018; recorded by "Daniel Durán". • ♂; Municipality of Teolocholco, Quinta Secc.; 19.24111, -98.19035; 22 May 2022; recorded by "Yareli Santos". • ♂; Municipality of Tepeyanco, La Aurora; 19.25389, -98.2225; 20 May 2022; recorded by "Edna Deyanira Cadena". • ♀; Municipality of Tepeyanco; 19.24489, -98.2336; 20 May 2022, recorded by "Angelique Yamilet Cuaquentzi Hernandez". • ♂; Municipality of Tetlatlahuca, Atenco, 90730; 19.23508, -98.29971; 23 May 2022; recorded by "Mari Carmen Ramirez Perez". • ♂; Municipality of Tetlatlahuca; 19.23332, -98.29379; 19 May 2022; recorded by "Mari Carmen Ramirez Perez". • ♀; Municipality of Tlaxcala, Santa María Acuitlapilco; 19.29019, -98.23715; 19 Feb. 2024; recorded by "J. Erick Gómez". • ♀ and Juvenile; Municipality of Tlaxcala, City center; 19.32298, -98.24654; 5 May 2018; recorded by "Francisco Acosta". • Juvenile; Municipality of Totolac, San Francisco Ocotelulco; 19.33007, -98.23421; 15 Sep. 2019; recorded by "Carlos C. Cruz". • ♂; Municipality of Zacatelco; 19.19857, -98.24864; 21 May 2022; recorded by "Ale Rodríguez".

ZACATECAS (Fig. 2m).
Material examined • 23♂; Municipality of Zacatecas; 3 Aug. 1954; Mont A. Cazier, Willis J. Gertsch and George M. Bradt leg.; AMNH_IZC 00396379. • ♀; Municipality of Trancoso, Cerro del Pinar (1.5 km from Rancho El Pinar); 18 Sep. 1959; Pedro Reyes C. leg.; Colección de Insectos del Museo de Historia Natural y Cultura "Alfredo Barrera".

Photographic records • ♂; Municipality of Zacatecas; 22.7727913, -102.5765714; 25 Jun. 2024; recorded by "Eduardo Barba ACE". • ♂; Municipality of Susticacán; 22.59712637, -103.2251361; 7Aug. 2022; recorded by "Humberto Gonzalez Salas". • ♂; Municipality of Teúl de González Ortega; 21.3703321, -103.313885; Jul. 2023; recorded by "Roberto López". • ♂; Municipality of Trinidad García de la Cadena; 22.70597, -102.66586; 11 Oct. 2022; recorded by "yeseniaa02". • ♀; Municipality of Villanueva; 22.28638, -102.88638; 1 Sep. 2020; recorded by "Dayane Reveles". • Juvenile; Municipality of Sain Alto, Calle General Ignacio Zaragoza; 23.57615, -103.24735; 14 Mar. 2020; recorded by "Mart Long".

DISCUSION

Reviewed specimens exhibit size and coloration variations between populations (see Fig. 2a–f), with the most pronounced differences observed in those from Tamaulipas, which are the smallest recorded to date. The genus *Homoeogamia* exhibits a debatable taxonomic history, with multiple names proposed over time that were subsequently synonymized. Previously, three species were grouped within this genus: two from Mexico (*H. mexicana* and *H. azteca* Saussure, 1893) and one from Brazil (*H. brasiliana* Saussure, 1864). However, following several taxonomic revisions and adjustments, two of these were synonymized, leaving *H. mexicana* as the only valid species in the genus (Rehn, 1903; Princis, 1957; Estrada-Álvarez *et al*., 2022). However, as evidenced by the morphological differences identified in this study and the niche patterns described in Núñez-Bazán *et al*. (2024), there are sufficient indications to justify an integrative revision of the species. Such a

revision should incorporate evidence from multiple disciplines, such as genetics, morphometrics, and ecological niche, which were not widely considered in past taxonomic treatments.

ACKNOWLEDGMENTS. We extend our sincere gratitude to all contributors who have documented *Homoeogamia mexicana* through photographic records and shared them on citizen science platforms such as iNaturalist. Their valuable contributions significantly enriched this study and made this work possible. Thanks to the AMNH staff for digitalizing and making available the specimens deposited in their collection. We also want to thank Alejandro Zaldívar Riverón and Christina Mayorga Martínez and Jovana Magdalena Jasso Martínez for facilitating us to revise the specimens at the CNIN-UNAM.

LITERATURE CITED

Atkinson, T. H., Koehler, P. G., Patterson, R. S. (1991) Catalog and atlas of the cockroaches (Dictyoptera) of North America North of Mexico. *Miscellaneous Publications of the Entomological Society of America*, 78, 1–86.

Beccaloni, G. W. (2014) Cockroach Species File (Version 5.0/5.0) http://cockroach.speciesfile.org/HomePage/Cockroach/HomePage.aspx (Accessed on 20/ December/2024).

Bell, W. J., Roth L. M., Nalepa Ch. A. (2007) Cockroaches: Ecology, Behavior, and Natural History. The Johns Hopkins University Press, Baltimore, E.U. 230pp.

Brunner Von Wattenwyl, C. (1865) Nouveau système des blattaires. G. Braumüller (Ed.). Viena. 426 pp.

Burmeister, H. (1829) De insectorum systemate nturali. Grunert, Halis Saxonum [=Halle]. 40pp.

Burmeister, H. (1838) Kakerlaken, Schaben. Blattina. Pp. 469–517. *In:* Handbuch der Entomologie. Zeiter Band. Besondere Entomologie. Zweite Abtheilung. Kaukerfe. Gymnognatha. (Erste Haelfte; vulgo Orthoptera) (T.C. F. Enslin, Ed.). Berlín. 1050 pp.

[ESRI] Environmental Systems Research Institute (2020) ArcGIS desktop release 10.8. Environmental Systems Research Institute, Inc., Redlands, CA.

Estrada-Álvarez, J. C. (2013) Primera lista de las Cucarachas (Insecta: Dictyoptera: Blattaria) de México. *Boletín de la Sociedad Entomológica Aragonesa*, 53, 267–284.

Estrada-Álvarez, J. C., de Luna, M., García-Barrios, R., Sormani-Hernández, C. G. (2022) Synopsis of the cockroach family Corydiidae (Blattodea: Corydioidea) in North America, with an identification key to subfamilies and genera, and taxonomic changes. *Acta Zoológica Mexicana* (nueva serie) 38, 1–21. https://doi.org/10.21829/azm.2022.3812529

iNaturalist. Available at: https://www.inaturalist.org (Accessed on 25/Jul/2024].

Klass, K.D., Meier, R. (2006) A phylogenetic analysis of Dictyoptera (Insecta) based on morphological characters. *Entomologische Abhandlungen*, 63, 3–50.

Núñez-Bazán, R., Arellano, E., Cruz, D. D., Estrada-Álvarez, J. C. (2024) Natural history of the Mexican cockroach *Homoeogamia mexicana* Burmeister, 1838 (Blattodea: Corydiidae): biology, distribution, and habitat characterization. *Western North American Naturalist*, 84(2), 188 – 199. https://doi.org/10.3398/064.084.0203

Núñez-Bazán, R., Estrada-Álvarez, J. C., Sormani, C. G., Osorio-Beristain, M. (2021) New data on Corydioidea Saussure, 1864 (Blattodea) from Morelos, Mexico. *Boletín de la Sociedad Entomológica Aragonesa*, 69, 19–27.

Princis, K. (1957) Revision der Walker´schen und Kirby´schen Blattarientypen im British Museum of Natural History, London. *Opustula Entomologica*, 22, 87–116.

Qiu, L., Che, Y. L., Wang, Z. Q. (2018) Contributions to some Corydiinae genera (Blattodea: Corydioidea: Corydiidae) from China. *Journal of Natural History,* 52(21–22), 1433–1461. https://doi.org/10.1080/00222933.2018.1463406

Rehn, J. (1903) A Revision of the Orthopterous Genus Homoeogamia. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 55, 177–192. https://www.jstor.org/stable/4062882

Roth, L. M., Willis, E. R. (1960) The biotic associations of cockroaches. *Smithsonian Miscellaneous Collections*, 141, 1–439. https://repository.si.edu/handle/10088/22968

Saussure, H. (1864) Orthoptéres de L'America Moyenne, Mémoires pour servir a L'Histoire naturelle du Mexique des Antilles et des Etats-Unis quinque memorie. Genève. 276 pp.

Saussure, H. (1893) Revision de la tribu des Heterogamiens. *Revue Suisse de Zoologie,* 1, 289–318.