Scientific Note

First records of *Pseudomops septentrionalis* Hebard, 1917 (Blattodea: Blattellidae) in Nuevo León, Mexico

Primeros registros de *Pseudomops septentrionalis* Hebard, 1917 (Blattodea: Blattellidae) en Nuevo León, México

Julio Cesar Estrada-Álvarez[1, 2*], Jorge J. Rodríguez-Rojas[3] and Carlo G. Sormani H.[2,4]

*[1]Museo Universitario de Historia Natural "Dr. Manuel M. Villada" Universidad Autónoma del Estado de México, Toluca, Estado de México, México. [2]Entomological Research, Metepec, Estado México, México. *micraten@yahoo.com.mx. [3]Unidad de Patógenos y Vectores, Centro de Investigación y Desarrollo en Ciencias de la Salud, Universidad Autónoma de Nuevo León, Monterrey, Nuevo León, México. E-mail: jorge.rodriguezr@uanl.mx. [4]Instituto de Ecología, A.C., Xalapa, Veracruz, México. E-mail: sormanihc@gmail.com*

ZooBank: urn:lsid:zoobank.org:pub:35BAF7EB-E40B-438A-98D8-12EEAD803066
https://doi.org/10.35249/rche.47.4.21.12

Abstract. The "Pale bordered field cockroach" *Pseudomops septentrionalis* Hebard, 1917 has not been previously reported in the Mexican state of Nuevo León; therefore, we publish this new record and include photographs taken in the laboratory and extracted from the iNaturalist platform. A diagnosis and illustrations of the species are presented, and a new color variation is also reported for the first time.

Key words: Melanism; Northeast; tergal gland.

Resumen. La "cucaracha de campo de borde pálido" *Pseudomops septentrionalis* Hebard, 1917 no se ha reportado previamente en el estado mexicano de Nuevo León; por ello, publicamos este nuevo registro e incluimos fotografías tomadas en el laboratorio y extraídas desde la plataforma íNaturalist. Se presentan diagnosis e ilustraciones de la especie, y se reporta por primera vez una nueva variación de color.

Palabras clave: Glándula tergal; melanismo; noreste.

The genus *Pseudomops* Serville, 1831 in Mexico has five described species: *P. cinctus* (Burmeister, 1838), *P. guerinianus* (Saussure, 1862), *P. interceptus* (Burmeister, 1838), *P. septentrionalis* Hebard, 1917 and *P. nigrimaculis* Fisk, 1977. *Pseudomops* is present in 15 of the 31 states and one federal entity (CDMX or Mexico City) (Estrada-Álvarez 2013).

In 2021 specimens of *P. septentrionalis* were observed in Cascadas de Guadalupe, Cerro de la Silla, Nuevo León, Mexico (25°37'46.3" N, 100°12'36.3" W; masl 646 m). Specimens were subsequently collected in April and May of this year to confirm the identification. The determination was based on the structure of the tergal glands (*sensu* Roth 1969) and male genitalia of the male (*sensu* McKittrick 1964) and the original description (Hebard 1917). These specimens have been vouchered in the Museo Universitario de Historia Natural "Dr. Manuel M. Villada" (UAEMéx), deposited in the Entomological Research collection (CER),

Received 11 November 2021 / Accepted 23 November 2021 / Published online 10 December 2021
Responsible Editor: José Mondaca E.

Metepec, Estado de México, Mexico.

The photo records of *P. septentrionalis* in iNaturalist (2021) (https://www.inaturalist.org/) were corroborated, and only those corresponding to Mexico, but only those corresponding to the Mexican State of Nuevo León, are here included.

Pseudomops septentrionalis Hebard, 1917
(Figs. 1A-1J)

Diagnosis. Small species (12-19.75 mm); related with *P. interceptus* head red, orange, or dark brown (completely black in *P. guerinianus*, *P. nigrimaculis* and *P. cinctus*), sexual dimorphism in the antennas absent, both sexes with slightly hirsute antenna and annulli posterior to the hirsute third (sexual dimorphism in the antennas present in *P. guerinianus* and *P. cinctus*) and the morphology of the abdomen, laminae and male genitalia. *P. septentrionalis* differs from *P. interceptus* the structure of the tergal glands, tufts of piliform bristles only in T-3 and T-4 (Fig. 1G) (Roth 1969), styles and sclerites of the male genitalia and valvar complex in females (McKittrick 1964). Phenotypically this species is the only one present in Mexico and the United States with a pronotum with a rufus disc and yellowish border and anterior margin with diffuse blackish macula.

It is described based on material collected in Texas (male and female Brownsville, Cameron County, Texas, type locality) and Mexico (Saltillo, Coahuila; San Jose and Tamaulipas, females paratypes) (Hebard 1917). Subsequent years, new records were made within Mexican territory for the states of **Jalisco**: Tuxpan, Tuxpan. **Sinaloa**: Mazatlán, El Venadillo. **San Luis Potosí**: caves (without more data). **Tamaulipas**: Gómez Farías, San José; Matamoros, Heroica Matamoros; Jaumave, Sótano de la Joya de Salas en la Sierra Guatemala. Caves (without more data) (Rehn 1904; Hebard 1917, 1921, 1922 [1923], 1932, 1942 [1943]; Princis 1969; Reddell & Mitchell 1971; Reddell 1981; Atkinson *et al.* 1991; Estrada-Álvarez 2013; Palacios-Vargas *et al.* 2015).

In the USA *P. septentrionalis* occurs in Alabama, Arkansas, Louisiana, Mississippi, Oklahoma, and Texas (Hebard 1917, 1942 [1943]; Atkinson *et al*. 1991; Roulston & Appel 1997; Schiff & Schiefer 1999; Gaspar *et al*. 2015).

Notes. 1) The record to Panama in Fisk (1971), they are misidentification, belong to *P. interceptus*. 2) The record in Estrada-Álvarez & Guadarrama (2013) and Estrada-Álvarez (2013), they are misidentification, belong to *P. interceptus* (material revised).

Material examined. Nuevo León, Mexico (18: 15 males, 3 females): 10 males, 2 females from Nuevo León, Cascadas de Guadalupe, Cerro de la Silla; 25°37'46.3"N, 100°12'36.3"W; 27.IV.2021; Jorge J. Rodríguez-Rojas coll. (CER). 5 males, 1 female same data; 27.V.2021 (CER).

Other material examined (original data on label, in brackets []): *Pseudomops septentrionalis* Hebard, 1917 male holotype. [Brownsville, Cameron County, Texas; July 31-Aug. 5, 1912] (ANSP) (Phototype by Dr. Hedi Hopkins, in Beccaloni (2014), revised). 1 female [Dallas, Texas; Marcet coll. "ID err. det. Saussure *P. cincta"*] (MHNG, revised). 1 female [Moyoapam(sic), Mexique; Sumichhrast coll. "ID err. det. Saussure *P. cincta"*] (MHNG, revised). [1 female Dallas, Texas; coll. Anonymous "ID err. det. Saussure *P. cincta"*] (MHNG, revised). 1 Ooteca [Dallas, Texas; coll. Anonymous "ID err. det. Saussure *P. cincta"*] (MHNG, revised). 1 male [Atoyac, Veracruz; May; H. H. Smith coll. "ID err. det. Saussure *P. cincta"*] (MHNG, revised). *Thyrsocera sallei* Saussure, 1862. Male lectotype. [Vera Crux, le Mexique; Saussure coll.] (MHNG, revised).

Notes. We found great melanic variation in the examined material, from a light (Figs. 1A-1C) to a very melanic form (Figs. 1D-1F).

Figure 1. *Pseudomops septentrionalis*. A-F. Color variation. A-C. Light form. D-F. Melanic form. G. Abdomen in dorsal view, showing tufts of piliform bristles in T-3 and T-4. H-J. Specimens in their natural habitat. / A-F. Variación de color. A-C. Forma clara. D-F. Forma melánica. G. Abdomen en vista dorsal, mostrando mechones de cerdas piliformes en T-3 y T-4. H-J. Espécimenes en su hábitat natural.

Photo records examined (iNaturalist): **Nuevo León** [Mpty. **Allende**] Allende; 25°14′01.9″N, 100°02′29.9″W; 29.V.2020; photo by "omargarza". [Mpty. **Aramberri**] Aramberri; 24°08′05.0″N, 100°02′55.4″W; 23.VI.2019; photo by "fafael_torres". [Mpty. **García**] García; 25°48′36.3″N, 100°35′38.6″W; 06.VI.2021; photo by "anerio". [Mpty. **General Zaragoza**] General Zaragoza; 23°56′52.9″N, 99°45′59.0″W; 18.V.2019; photo by "raulbenavides". [Mpty. **Guadalupe**] Guadalupe; 25°37′49.9″N, 100°12′31.7″W; 21.VI.2015; photo by "psilocyb3". Guadalupe; 25°41′22.9″N, 100°10′31.3″W; 29.VI.2016; photo by "gonzalezii". Guadalupe; 25°39′46.3″N, 100°15′19.0″W; 03.IX.2016; photo by "aztekium_tutor". Guadalupe; 25°39′45.7″N, 100°15′27.3″W; 20.III.2017; photo by "monica2014". Guadalupe; 25°37′45.1″N, 100°12′38.6″W; 30.IV.2018; photo by "aztekium_tutor". Guadalupe. 25°37′49.9″N, 100°12′31.9″W; 27.V.2018; photo by "yoshito_fm". Guadalupe; 25°37′49.9″N, 100°12′31.9″W; 25.III.2019; photo by "aztekium_tutor". Guadalupe; 25°40′53.0″N, 100°16′05.7″W; 05.IV.2019; photo by "aztekium_tutor". Guadalupe; 25°39′49.6″N, 100°15′25.7″W; 26.IV.2019; photo by "biolily". Guadalupe; 25°39′46.0″N, 100°15′27.0″W; 26.IV.2019; photo by "mich_croc". Guadalupe; 25°37′55.6″N, 100°12′29.6″W; 29.IV.2019; photo by "biolily". Guadalupe; 25°40′11.7″N, 100°15′02.4″W; 31.V.2020; photo by "gera_bio". Guadalupe; 25°40′11.7″N, 100°15′02.4″W; 31.V.2020; photo by "gera_bio". Guadalupe; 25°39′28.9″N, 100°15′47.2″W; 22.II.2021; photo by "adriananelly". Guadalupe; 25°37′49.7″N, 100°12′32.6″W; 23.III.2021; photo by "biojorgerdz". Guadalupe; 25°37′51.2″N, 100°12′28.4″W; 04.VIII.2021; photo by "aztekium_tutor". [Mpty. **Hualahuises**] Hualahuises; 24°54′59.5″N, 99°41′11.4″W; 16.X.2013; photo by "aztekium_tutor". [Mpty. **Iturbide**] Iturbide; 24°35′41.8″N, 99°48′26.3″W; 26.IV.2014; photo by "juancruzado". [Mpty. **Juárez**] Juárez; 25°35′22.4″N, 100°11′07.6″W; 29.IV.2018; photo by "biolily". Juárez; 25°35′22.5″N, 100°11′07.4″W; 29.IV.2018; photo by "aztekium_tutor". Juárez; 25°33′21.3″N, 100°10′11.5″W; 19.IX.2020; photo by "d_b". [Mpty. **Linares**] Linares; 24°49′44.2″N, 99°34′58.2″W; 16.X.2013; photo by "juancruzado". Linares; 24°49′45.5″N, 99°34′59.1″W; 15.VII.2014; photo by "juancruzado". Linares; 24°49′45.3″N, 99°34′58.8″W; 13.V.2014; photo by "juancruzado". Linares; 24°49′46.4″N, 99°34′59.4″W; 16.V.2015; photo by "juancruzado". Linares; 24°51′12.5″N, 99°34′30.3″W; 24.V.2016; photo by "juampos". Linares; 24°48′14.0″N, 99°37′58.9″W; 05.V.2017; photo by "xanettaguilar". Linares; 24°47′46.0″N, 99°32′29.6″W; 23.X.2018; photo by "luciaromo01". [Mpty. **Montemorelos**] Montemorelos; 25°11′42.7″N, 99°49′14.1″W; 11.IX.2016; photo by "xanettaguilar". [Mpty. **Monterrey**] Monterrey; 25°32′16.9″N, 100°16′35.6″W; 19.VII.2014; photo by "raulernestoo3". Monterrey; 25°31′44.4″N, 100°12′13.5″W; 21.VI.2014; photo by "oscar_almeda". Monterrey; 25°33′00.4″N, 100°16′12.8″W; 29.IV.2016; photo by "aztekium_tutor". Monterrey. 25°40′36.1″N, 100°17′10.2″W; 17.III.2017; photo by "aztekium_tutor". Monterrey; 25°32′59.6″N, 100°16′13.8″W; 13.V.2018; photo by "ignacio_a_rodriguez". Monterrey; 25°31′46.2″N, 100°16′47.3″W; 11.XII.2018; photo by "belgomex". Monterrey; 25°40′37.3″N, 100°16′55.7″W; 01.IX.2018; photo by "hvillalonmoreno". Monterrey; 25°32′29.0″N, 100°16′19.2″W; 26.IV.2019; photo by "gera_bio". Monterrey; 25°40′54.2″N, 100°16′07.5″W; 27.IV.2019; photo by "pato8". Monterrey; 25°33′45.9″N, 100°16′43.0″W; 29.IV.2019; photo by "biolily". Monterrey; 25°32′38.1″N, 100°16′15.0″W; 05.V.2019; photo by "gustavogarz". Monterrey; 25°32′09.5″N, 100°13′09.1″W; 16.IV.2020; photo by "pedro_alanis". Monterrey; 25°32′09.4″N, 100°13′08.8″W; 20.IV.2020; photo by "pedro_alanis". Monterrey; 25°40′36.8″N, 100°16′57.1″W; 24.VI.2020; photo by "hvillalonmoreno". Monterrey; 25°34′34.8″N, 100°15′48.0″W; 14.IV.2021; photo by "susygib". Monterrey; 25°32′55.0″N, 100°16′15.0″W; 14.VII.2021; photo by "gera_bio". Monterrey; 25°33′00.1″N, 100°16′12.3″W; 15.VIII.2021; photo by "gera_bio". [Mpty. **San Pedro Garza García**] San Pedro Garza García; 25°37′06.5″N, 100°21′30.7″W; 06.VII.2018; photo by "aepigmenio". San Pedro Garza García; 25°37′05.7″N, 100°21′35.3″W; 20.V.2019; photo by "aepigmenio". San Pedro Garza García; 25°36′49.4″N, 100°21′27.1″W; 31.V.2019; photo by "aztekium_tutor". San Pedro Garza García; 25°37′05.7″N, 100°21′37.8″W; 15.V.2020; photo by "aepigmenio". San Pedro Garza

García; 25°39′47.3″N, 100°21′58.1″W; 19.IV.2020; photo by "ignacio_a_rodriguez". San Pedro Garza García; 25°36′31.0″N, 100°22′19.0″W; 25.V.2020; photo by "jorgemontalvovillarreal". San Pedro Garza García; 25°36′20.3″N, 100°21′03.6″W; 08.V.2021; photoby "ignacio_a_rodriguez". San Pedro Garza García; 25°36′07.0″N, 100°20′42.5″W; 22.V.2021; photo by "ignacio_a_rodriguez". San Pedro Garza García; 25°36′06.0″N, 100°20′42.3″W; 07.VII.2021; photo by "ignacio_a_rodriguez" [Mpty. **Santiago**] Santiago; 25°26′23.6″N, 100°06′25.1″W; 07.X.2016; photo by "biolily". Santiago; 25°24′27.3″N, 100°07′54.1″W; 10.III.2017; photo by "pedro_alanis". Santiago; 25°28′43.2″N, 100°10′46.7″W; 23.III.2017; photo by "pedro_alanis". Santiago; 25°27′43.7″N, 100°09′40.9″W; 12.IV.2017; photo by "pedro_alanis". Santiago; 25°28′42.8″N, 100°10′46.8″W; 27.IV.2017; photo by "pedro_alanis"; Santiago; 25°25′10.0″N, 100°22′45.7″W; 01.VI.2019; photo by "cynthiac". Santiago; 25°18′03.9″N, 100°08′36.4″W; 13.VI.2019; photo by "areyib". Santiago; 25°22′27.4″N, 100°12′41.7″W; 28.V.2020; photo by "aztekium_tutor". Santiago; 25°23′54.0″N, 100°08′07.4″W; 31.VII.2020; photo by "pedro_alanis". Santiago; 25°23′54.3″N, 100°08′06.2″W; 01.VIII.2020; photo by "pedro_alanis". [Mpty. **Zuazua**] Zuazua; 25°52′31.7″N, 100°13′49.9″W; 25.VI.2021; photo by "hernyherbolario".

Pseudomops septentrionalis Hebard, 1917 is distributed from the USA to Mexico. In Mexico there are few records in the literature (Hebard 1917; Atkinson *et al*. 1991). Published reports mention the presence of in Coahuila, San Luis Potosi, Jalisco, Sinaloa, and Tamaulipas (Hebard 1917, 1921; Atkinson *et al*. 1991). But in the iNaturalist platform, 89 photo records have been observed in Mexico from 2013 to 2021. It is present in the states of Chihuahua, Sinaloa, Nuevo León, Tamaulipas, Zacatecas, San Luis Potosí, Queretaro, State of Mexico and Veracruz. With these photo records, the distribution of *P. septentrionalis* is wider, and it is along the Sierra Madre Oriental and Sierra Madre Occidental in Mexico.

In the present work, we captured and reviewed 18 specimens, which are reported for the first time in the state of Nuevo León. These records were found in the Cascadas de Guadalupe, Cerro de la Silla, Nuevo León. These were found perched on the rock at night, between 21:15 and 21:40 h. On the iNaturalist platform, there are seven photo records in this area. Five of them are perched on a plant leaf during the day, and two on the rock at night.

Also, the 69 photo records documented in the iNaturalist platform show a distribution through the Sierra Madre Oriental in Nuevo León, and the records outside the conserved areas are close to the rivers, thus it apparently has a displacement by the Rio Santa Catarina and Rio La Silla. All 45 photographic records of *P. septentrionalis* have been observed in wild habitats, 18 photo records in rural environments, and six photo records in urban areas of Nuevo León. Although it has been reported in urban areas, this species has not been reported of importance as a pest. On the other hand, two color patterns have been observed, one light (male) and one darker (male), both are sympatric.

Acknowledgements

We express our sincere gratitude to Dr. Alejandro Zaldívar R. and MSc. Ma. Cristina Mayorga (CNIN-IBUNAM, UNAM, CDMX, Mexico); Dr. Patricia Rojas F. (INECOL, Veracruz, Mexico); Dr. José G. Palacios Vargas and Dra. Blanca E. Mejía Recamier (LESM, UNAM) and Dr. Peter Schwendinger and Dr. John Hollier (MHNG, Genève, Suisse) for the facilities granted for the review of material included in this study; to Dr. Karen Wright (Texas A&M University), for multiple attempts to provide me with material for this and other projects. To Dr. Hedi Hopkins for your support. Dale Lee Denham for their corrections and observations that enriched this work. To Carlos G. Velazco-Macias for authorizing the use of your photos. To Entomological Research for partially funding this work.

Literature Cited

Atkinson, T.H., Philip, G.K. and Patterson, S, (1991) Catalog and atlas of the cockroaches of North America North of Mexico. *Miscellaneous Publications of the Entomological Society of America, 78*: 1-85.

Beccaloni, G. (2014) Cockroach Species File Online. Version 5.0. http://cockroach.speciesfile. org/. Accessed November 2021.

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. and Guadarrama, R.C. (2013) Nuevos registros de cucarachas (Blattodea) para México. *Dugesiana, 20*: 49-53.

Fisk, W.F. (1971) An annotated check list of Costa Rican cockroaches (Dictyoptera: Blattaria). *Proceedings of the Entomological Society of Washington, 73*(4): 431-444.

Gaspar, J.P., Minteer, C.R., Mckay, T. and Raghu, S. (2015) First records for *Pseudomops septentrionalis* Hebard (Blattodea: Ectobiidae) and *Acantholomidea porosa* (Germar) (Heteroptera: Scutelleridae), in Arkansas. *Journal of the Kansas Entomological Society, 88*(1): 124-127. https://doi.org/10.2317/jkes1402.28.1

Hebard, M. (1917) The Blattidae of North America North of the Mexican boundary. *Memoirs American Entomological Society, 2*: 1-284.

Hebard, M. (1921) Mexican records of Blattidae (Orthoptera). *Transactions of the American Entomological Society, 47*(3): 199-220.

Hebard, M. (1922) Dermaptera and Orthoptera from the State of Sinaloa, México: Part I, Dermaptera and Non Saltatorial Orthoptera. *Transactions of the American Entomological Society, 48*(3): 157-196 [1923].

Hebard, M. (1932) New species and records of Mexican Orthoptera. *Transactions of the American Entomological Society, 58*: 201-371.

Hebard, M. (1942) The Dermaptera and Orthopterous families Blattidae, Mantidae and Phasmidae of Texas. *Transactions of the American Entomological Society, 68*(4): 239-310 [1943].

iNaturalist (2021) Available from: https://www.inaturalist.org. Accessed September 16, 2021.

McKittrick, F.A. (1964) Evolutionary studies of cockroaches. *Memoir (Cornell University. Agricultural Experiment Station), 389*: 1-197.

Palacios-Vargas, J.G., Juberthie, C. and Reddell, J.R. (2015) Encyclopaedia Biospeologica Vol. IIa, México. *Mundos Subterráneos, 25-26*: 1-101.

Princis, K. (1969) Blattariae: Subordo Epilamproidea. Fam.: Blattellidae (pp. 712-1038). *In*: Beier, M. (Ed.). *Orthopterorum Catalogus*. Pars 13. W. Junk,'s-Gravenhage.

Reddell, J.R. and Mitchell, R.W. (1971) A checklist of the cave fauna of Mexico. II. Sierra de Guatemala. Tamaulipas (pp. 181-215), *In*: Reddell & Mitchell 1971. Studies on the cavernicole fauna of Mexico. *Bulletin of the Association for Mexican Cave Studies*, 4.

Reddell, J.R. (1981) A review of the cavernicole fauna of Mexico, Guatemala, and Belize. *Bulletin Texas Memorial Museum, University of Texas at Austin*. 327 pp.

Rehn, J.A.G. (1904) Notes on Orthoptera from Northern and Central Mexico. *Proceedings of the Academy of Natural Sciences of Philadelphia, 56*: 513-561.

Roth, L.M. (1969) The evolution of male tergal glands in the *Blattaria*. *Annals of the Entomological Society of America, 62*(1): 176-208. https://doi.org/10.1093/aesa/62.1.176

Roulston, T. and Appel, A. (1997) First Alabama record of the pale-bordered cockroach, *Pseudomops septentrionalis* (Dictyoptera: Blattellidae). *Entomological News, 108*: 159-160.

Schiff, N.M. and Schiefer, T.L. (1999) New Blattodea records from Mississippi and Alabama. *Entomological News, 110*: 240-242.