




New northernmost records of the shield mantis *Choeradodis rhombicollis* (Latreille, 1833) (Mantidae: Choeradodinae) in Mexico

Nuevos registros norteños de la mantis escudo *Choeradodis rhombicollis* (Latreille, 1833)
(Mantidae: Choeradodinae) en México

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Abstract. The shield mantis *Choeradodis rhombicollis* (Latreille, 1833) is a neotropical species that had been recorded for Mexico in the states of Chiapas and Oaxaca. This work report for the first time its presence for the state of Veracruz via the examination of specimens deposited in scientific collections, as well as the revision of records present on the citizen science platform iNaturalist. The new records for Veracruz correspond to the northernmost distribution for the species, genus, and subfamily in America.

Key words: Dictyoptera; Mantodea; praying mantis; soothsayer; Veracruz.

Resumen. La mantis escudo *Choeradodis rhombicollis* (Latreille, 1833) es una especie neotropical que ha sido registrada para México en los estados de Chiapas y Oaxaca. En este trabajo se reporta por primera vez para el estado de Veracruz a través de la examinación de especímenes depositados en colecciones científicas, así como de la revisión de registros presentes en la plataforma de ciencia ciudadana iNaturalist. Los nuevos registros para Veracruz corresponden a la distribución más norteña para la especie, género y subfamilia en América.

Palabras clave: Campamocha; Dictyoptera; mantis religiosa; Mantodea; Veracruz.

The subfamily Choeradodinae Saussure, 1869 (Mantodea: Mantidae) comprises two genera: *Asiadodis* Roy, 2004, which includes two species native to southeast Asia; and *Choeradodis* Audinet-Serville, 1831, which includes five species native to southern Mexico, Central America, and northern South America (Roy 2004). The species of *Choeradodis* can be easily distinguished among the rest of the American mantids by their extremely laterally expanded pronotums, hence they are often called “shield mantises” (Figs. 1, 2) (Terra 1995; Jantsch 1999; de Luna and Hernández-Baltazar 2020); these expansions combined with their green coloration makes them appear as living leaves.

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Choeradodis rhombicollis (Latreille, 1833) was mentioned for Mexico by Roy (2004) and Agudelo *et al.* (2007), however, they did not examine any Mexican specimens. Later, the species was mentioned by Cano-Santana and Castellanos-Vargas (2012) for the state of Oaxaca, specifically for the locality of San Gabriel Mixtepec (Cano-Santana 2023) (Fig. 3). The second record for Mexico was made by Hernández-Baltazar *et al.* (2019) for the state of Chiapas, in the “Selva El Ocote” Biosphere Reserve (REBISO) (Fig. 3). In an unpublished thesis, Jantsch (1999) mentioned *Choeradodis rhomboidea* (Houttuyn in Stol, 1813) for the state of Veracruz, but gave no specific locality. This record would later be cited by Agudelo *et al.* (2007) and Hernández-Baltazar *et al.* (2018); however, given the distribution comments given by Roy (2004), this mention was dismissed in the latest checklist of Mexican mantises (de Luna and Hernández-Baltazar 2020). Here we regard the record of Jantsch (1999) as either a misidentified *C. rhombicollis* or a mislabeled *C. rhomboidea* and requires further re-examination of the specimen cited which is deposited in the Entomology Department of the University of Minnesota, USA.

Whilst visiting the Estación de Biología Tropical “Los Tuxtlas” on September 20, 2018, in the municipality of San Andrés Tuxtla, state of Veracruz, Mexico, a very large, green leaf-like mantis was found flying at night (around 23:00 h), being attracted to a light source; the specimen was caught manually and preserved in 70% ethanol, it was later deposited in the Laboratorio de Entomología de la Facultad de Ciencias Forestales (FCF) de la Universidad Autónoma de Nuevo León (UANL). It was recently examined, being identified as an adult male of the genus *Choeradodis* using the key of de Luna and Hernández-Baltazar (2020), and then as *Choeradodis rhombicollis* using the key of Roy (2004). Twenty-seven (27) specimens were also examined: 24 (1 male and 1 female from Chiapas, 1 male from Oaxaca and 21 males from Veracruz) deposited in the Colección Nacional de Insectos (CNIN) de la Universidad Nacional Autónoma de México (UNAM); and 3 (all males from Veracruz) deposited in the Colección Entomológica de la Estación de Biología Tropical “Los Tuxtlas” (EBTLT). The diagnosis is based on the works of Roy (2004) and de Luna and Hernández-Baltazar (2020). The distribution map was generated by entering the geographical coordinates on the website www.simplemapp.net.

The new records from the state of Veracruz correspond to the northernmost distribution point of *C. rhombicollis*, the genus *Choeradodis*, and the subfamily Choeradodinae in America. Additionally, Mexican records from the citizen science platform iNaturalist (2023) were revised on the 23th of October 2023 and corroborated by examining the typical morphology associated with the species (see diagnosis); this resulted in 65 confirmed observations of *C. rhombicollis* for the country, 24 from Chiapas, 5 from Oaxaca and 36 from Veracruz (Fig. 3).

Choeradodis rhombicollis (Latreille, 1833)

(Figs. 1-3)

Diagnosis. *Choeradodis* are large, green (Fig. 1) (yellow in old, dried specimens (Fig. 2) or ethanol preserved specimens), leaf-like mantises that have a pronotum that is laterally expanded into a hood making it about as wide as long (Figs. 1-2); in America it is the only genus with this characteristic, making it impossible to confuse it with anything else. *Choeradodis rhombicollis* has fine and irregular denticles in the anterior border of the forecoxae (Fig. 1), this distinguishes it from *Choeradodis columbica* Beier, 1913, *C. rhomboidea*, *Choeradodis stalii* Wood-Mason, 1880 and *Choeradodis strumaria* (Linnaeus, 1758) which have 6 to 12 strong spines in the same position.

Remarks. *Choeradodis rhombicollis* is the only species of its genus which ranges into North America (southern Mexico) and Central America north of Costa Rica.

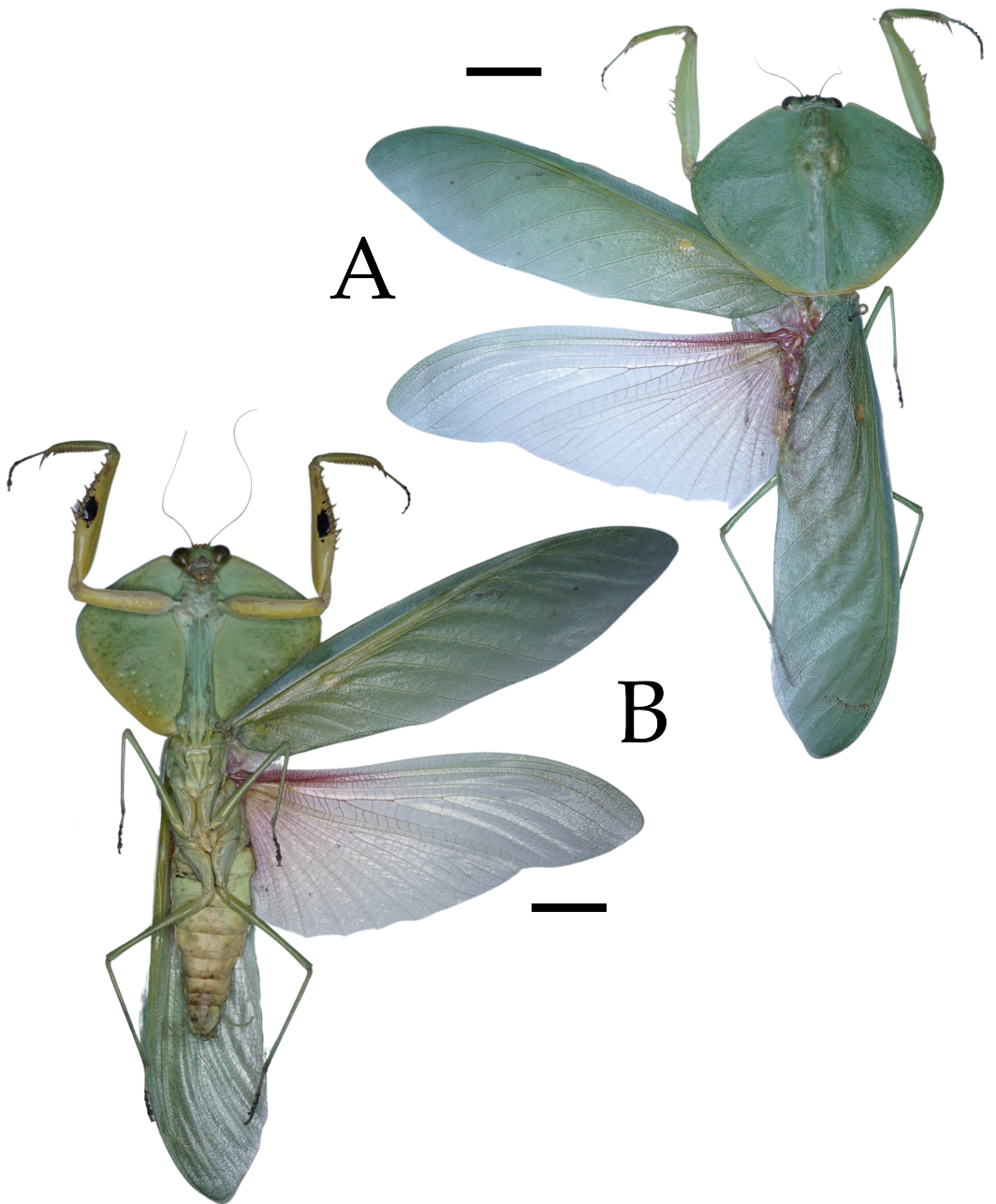


Figure 1. *Choeradodis rhombicollis*, male from Veracruz, Mexico. Scale bars: 1 cm. **A.** Dorsal aspect. **B.** Ventral aspect. / **Figura 1.** *Choeradodis rhombicollis*, macho de Veracruz, México. Barras de escala: 1 cm. **A.** Aspecto dorsal. **B.** Aspecto ventral.

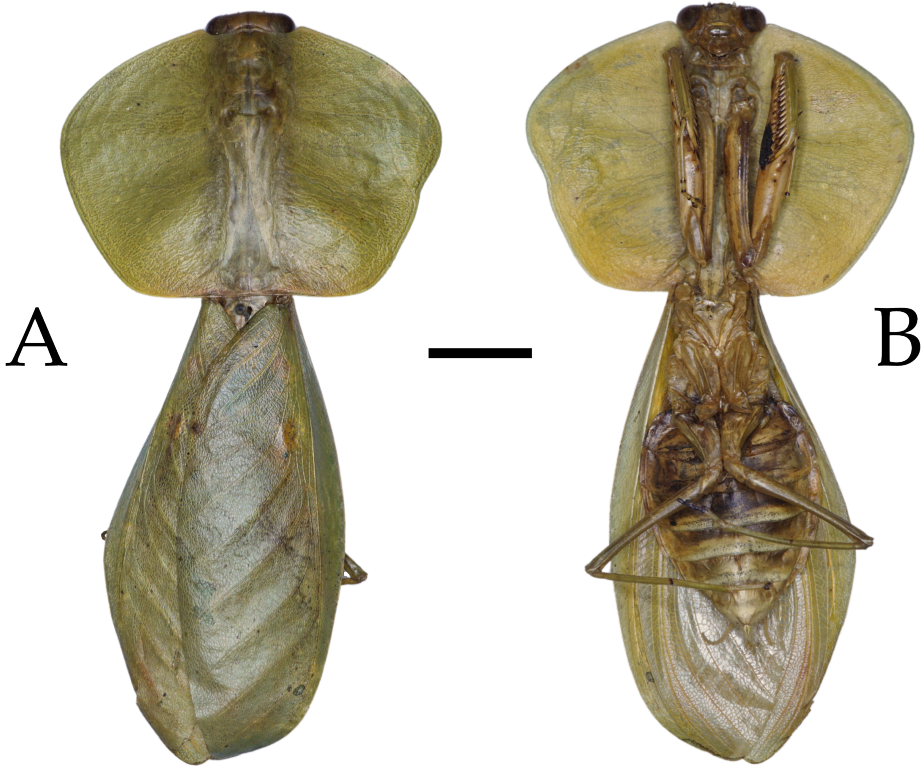


Figure 2. *Choeradodis rhombicollis*, female from Chiapas, Mexico. Scale bars: 1 cm. **A.** Dorsal aspect. **B.** Ventral aspect. / **Figura 2.** *Choeradodis rhombicollis*, hembra de Chiapas, México. Barras de escala: 1 cm. **A.** Aspecto dorsal. **B.** Aspecto ventral.

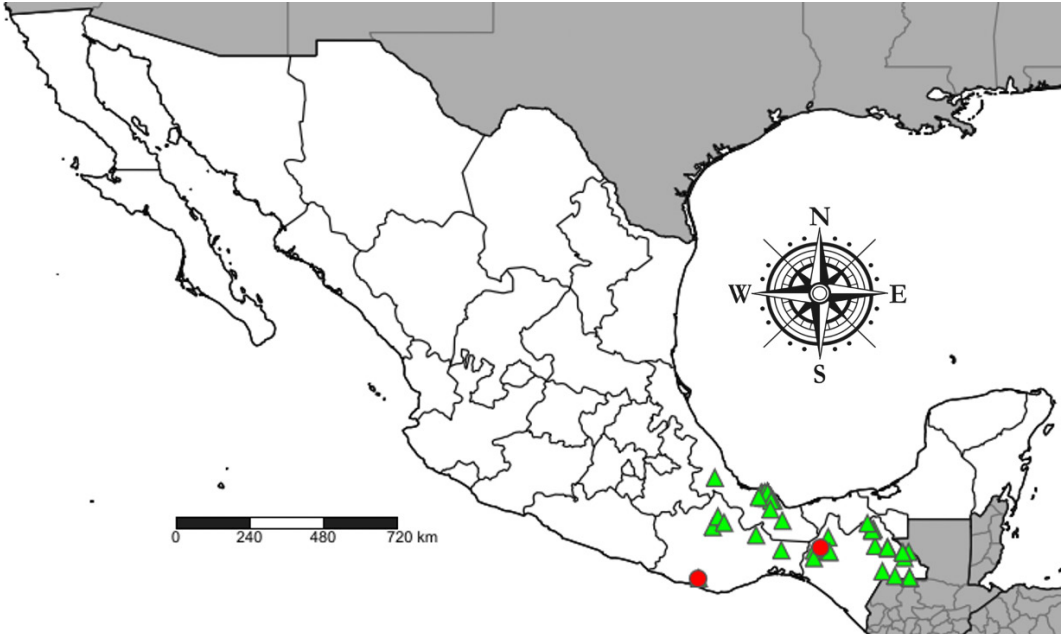


Figure 3. Distribution of *Choeradodis rhombicollis* in Mexico. Literature records (red circles). New records (green triangles). / **Figura 3.** Distribución de *Choeradodis rhombicollis* en México. Registros de literatura (círculos rojos). Nuevos registros (triángulos verdes).

Material examined. MEXICO. Chiapas. 1 male, Río Santo Domingo near border with Guatemala, IX-1952 (CNIN-UNAM). 1 female, Cintalapa, Selva del Mercadito, VIII-1948, Álvarez del Toro (CNIN-UNAM). **Oaxaca.** 1 male, San Gabriel Mixtepec, Juquila, XII-1963 (CNIN-UNAM). **Veracruz.** 1 male, Estación de Biología Tropical “Los Tuxtlas”, San Andrés Tuxtla, 18°35′05.28″N, 95°04′26.76″W, 147 m.a.s.l., 20-IX-2018, col. Manuel de Luna (FCF-MANTO001). 2 males, same locality, 18°35′2.13″N, 95°4′25.81″W, 158 m.a.s.l., 2-IX-2018, col. J.C. Vázquez (EBTLT, Specimen No 58 and 59). 1 male, same locality (no coordinates) (EBTLT, Specimen No 60). 2 males, same locality (no coordinates), 3/11-XI-1988, col. E. Mejorada (CNIN-UNAM). 1 male, same locality (no coordinates), 30-V-1976, col. R. Sánchez (CNIN-UNAM). 1 male, same locality (no coordinates), 3-VI-1989, col. S.L. Colin (CNIN-UNAM). 1 male, same locality (no coordinates), 9-V-1975, col. S. Ortega L. (CNIN-UNAM). 3 males, same locality, 18°35′6.3″N, 95°04′30.3″W, col. M. Ga. Paris (CNIN-UNAM). 1 male, same locality (no coordinates), 30-II-1976, col. R. Sánchez (CNIN-UNAM). 1 male, same locality (no coordinates), 24-V-1989, col. J.L. Colin (CNIN-UNAM). 2 males, same locality (no coordinates), 24-V-1989, col. J.L. Colin and H. Rojas (CNIN-UNAM). 2 males, same locality (no coordinates), 24/29-I-1986, col. G. Ortega (CNIN-UNAM). 1 male, same locality (no coordinates), 18-X-1988, col. M.A. [illegible] and E. Mejorada (CNIN-UNAM). 1 male, same locality (no coordinates), 16/18-V-2015, col. G. Garfias-Lozano (CNIN-UNAM). 1 male, Poza Reyna, Municipality of Catemaco, 18°21′9″N, 94°58′20″W, 7-VI-2009, 440 m.a.s.l., col. L. Cervantes and D. Brzoska (CNIN-UNAM). 1 male, El Vigía, Santiago Tuxtla, 8-XI-1963 (CNIN-UNAM). 1 male, Hidalgotitlán, 14-VI-1958, col. G. Velázquez (CNIN-UNAM). 1 male, Las Cabañas, 12-I-1972 (CNIN-UNAM). 1 male, same locality, 20-VII-1972 (CNIN-UNAM).

Photographic records (iNaturalist). MEXICO. Chiapas. Municipality of Palenque, 19-VII-2018, photo by “compass_expeditions_ne”. Municipality of Palenque, 28-VII-2018, photo by “solgo”. Municipality of Ocosingo, 19-XII-2022, photo by “gacrmiguel”. Municipality of Palenque, 19-VII-2018, photo by “compass_expeditions_ne”. Municipality of Cintalapa, 8-XI-2022, photo by “el_neotropico”. Municipality of Berriozábal, 13-X-2021, photo by “gaspar_moreno”. Municipality of Berriozábal, 11-X-2021, photo by “matteocassella”. Municipality of Las Margaritas, 4-VII-2021, photo by “magui_morales”. Municipality of Chillón, 25-XI-2015, photo by “samuel178”. Municipality of Francisco León, 31-X-2011, photo by “manuel_chame”. Municipality of Ocosingo, 3-XI-2020, photo by “emmanuemartinez”. Municipality of Palenque, 5-IX-2020, photo by “sypie”. Municipality of Ocosingo, 3-I-2020, photo by “sabrewing”. Municipality of Palenque, 3-VIII-2018, photo by “solootrocuentodehadas”. Municipality of Ocosingo, 26-VIII-2018, photo by “gacrmiguel”. Municipality of Palenque, 27-III-2012, photo by “sandra_lgtz”. Municipality of Ocosingo, 1-VII-2020, photo by “dianaf”. Municipality of Ocosingo, 18-IV-2017, photo by “irismmelgar”. Municipality of Ocosingo, 4-I-2012, photo by “manuelhernandezancheita”. Municipality of Berriozábal, 22-VIII-2016, photo by “kaibilbalam”. Municipality of Ocosingo, 19-I-2015, photo by “marroquidavi” (once repeated). Municipality of Ocosingo, 24-VII-2012, photo by “yamaneko”. Municipality of Ocosingo, 17-XII-2006, photo by “huracan”. **Oaxaca.** Municipality of Santa María Chimalapa, 30-XI-2019, photo by “geroherdez”. Municipality of San Juan Cotzocón, 24-X-2019, photo by “yediael”. Municipality of San Juan Bautista Atlatlahuca, 15-VI-2018, photo by “franciscoacos”. Municipality of San Felipe Usila, 15-VI-2018, photo by “franciscoacos” (once repeated). Municipality of San Juan Bautista Valle Nacional, 11-I-2017, photo by “gomeztoledorozzio”. **Veracruz.** Municipality of Catemaco, 9-VI-2022, photo by “patyletona”. Municipality of San Andrés Tuxtla, 10-XII-2017, photo by “fran36”. Municipality of San Andrés Tuxtla, 1-VI-2023, photo by “thatsadmachine”. Municipality of San Andrés Tuxtla, 11-V-20123, photo by “deneb16”. Municipality of San Andrés Tuxtla, 13-V-2023, photo by “deneb16”. Municipality of

Camarón de Tejeda, 10-III-2023, photo by “evelynblanco28”. Municipality of Catemaco, 16-XI-2022, photo by “florjaramillo95” (once repeated). Municipality of San Andrés Tuxtla, 5-VI-2022, photo by “victor_jimenez_arcos”. Municipality of San Andrés Tuxtla, 14-VI-2022, photo by “a_mf98”. Municipality of San Andrés Tuxtla, 6-VI-2022, photo by “carmen_vr”. Municipality of San Andrés Tuxtla, 18-VI-2017, photo by “kimbanessie”. Municipality of Catemaco, 1-VI-2021, photo by “hector_enrique_jimenez_hernandez”. Municipality of San Andrés Tuxtla, 9-VI-2009, photo by “eric_centenero-alcala”. Municipality of San Andrés Tuxtla, 21-VIII-2019, photo by “jorge-ramos”. Municipality of Catemaco, 4-VII-2019, photo by “agoutiboy”. Municipality of Catemaco, 23-VI-2009, photo by “ivanpazvinas”. Municipality of Catemaco, 9-X-2006, photo by “vireolanius”. Municipality of San Andrés Tuxtla, 30-V-2008, photo by “franciscojosegomezmarin”. Municipality of San Andrés Tuxtla, 13-VI-2018, photo by “elugo”. Municipality of San Andrés Tuxtla, 18-V-2013, photo by “leonardoac”. Municipality of San Andrés Tuxtla, 23-XI-2019, photo by “alejandrocaldaza”. Municipality of San Andrés Tuxtla, 19-VI-2018, photo by “jacobgorneau”. Municipality of San Andrés Tuxtla, 6-VI-2019, photo by “littlewhitbit”. Municipality of San Andrés Tuxtla, 6-VI-2019, photo by “jmaley”. Municipality of San Andrés Tuxtla, 3-VI-2018, photo by “mauriciotelesramirez”. Municipality of San Andrés Tuxtla, 10-XII-2017, photo by “gisel_15”. Municipality of San Andrés Tuxtla, 28-VI-2018, photo by “alexiz”. Municipality of Catemaco, 17-VI-2015, photo by “alexandrus”. Municipality of San Andrés Tuxtla, 10-XI-2016, photo by “lichotarantula” (once repeated). Municipality of San Andrés Tuxtla, 23-V-2015, photo by “santis”. Municipality of San Andrés Tuxtla, 15-V-2017, photo by “esteph_”. Municipality of San Andrés Tuxtla, 30-VIII-2011, photo by “ivanresendizcruz”. Municipality of San Andrés Tuxtla, 10-XII-2013, photo by “hydaticus”.

The species of the genus *Choeradodis* are found in the Neotropics: *C. columbica* is found in Colombia, Ecuador and Peru; *C. rhombicollis* in Belize, Colombia, Costa Rica, Ecuador, French Guiana, Mexico, Nicaragua, Panama, Peru and Suriname, not in Guyana; *C. rhomboidea* in Bolivia, Brazil, Colombia, Costa Rica, Ecuador, French Guiana, Guyana, Peru, Suriname and Venezuela, not in Mexico; *C. stalli* in Bolivia, Brazil, Colombia, Ecuador, French Guiana, Panama and Peru; and *C. strumaria* in Colombia, French Guiana, Guyana, Peru and Suriname, not in Belize (Roy 2004; Agudelo *et al.* 2007; de Luna and Hernández-Baltazar 2020; Moulin and Roy 2020). *Choeradodis rhombicollis* is found in three Mexican states, Chiapas, Oaxaca and Veracruz, the latter having the new northernmost records for the species, genus, and subfamily in America; it is likely that the species is also found in the state of Tabasco.

Author Contributions

MdL: Conceptualization, investigation, resources, writing - original draft, visualization. **EHB:** Validation, investigation, writing - review & editing. **ICM:** Investigation, writing - review & editing. **RGB:** Conceptualization, writing - review & editing, supervision.

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