

Confirmation of the presence of the genus *Macromantis* Saussure, 1871 (Mantodea: Photinaidae) in Mexico

Confirmación de la presencia del género *Macromantis* Saussure, 1871 (Mantodea: Photinaidae) en México

 ¹ MANUEL DE LUNA,  ^{2*} ERICK HERNÁNDEZ-BALTAZAR,  ³ IKER CUBILLOS-MACÍAS

¹Facultad de Ciencias Forestales, Universidad Autónoma de Nuevo León, Carretera a Ciudad Victoria km 145, C.P. 67700, Linares, Nuevo León, México.

²Instituto de Ciencias Biológicas, Universidad de Ciencias y Artes de Chiapas, Libramiento Norte Poniente 1150, Caleras Maciel, C. P. 29029, Tuxtla Gutiérrez, Chiapas.


³Facultad de Ciencia y Tecnología, Universidad Simón Bolívar.



Responsible editor: Magdalena Cruz Rosales

Acta Zoológica Mexicana (nueva serie)

*Corresponding author:

 Erick Hernández-Baltazar
kcireherbal@gmail.com

How to cite:

De Luna, M., Hernández-Baltazar, E., Cubillos-Macías, I. (2024) Confirmation of the presence of the genus *Macromantis* Saussure, 1871 (Mantodea: Photinaidae) in Mexico. *Acta Zoológica Mexicana (n.s.)*, 40, 1–6.

10.21829/azm.2024.4012647
elocation-id: e4012647

Received: 18 October 2023

Accepted: 01 February 2024

Published: 20 March 2024

ABSTRACT. The mantis *Macromantis nicaraguae* Saussure and Zehntner, 1894 (Mantodea: Photinaidae) is recorded for the state of Chiapas, Mexico, being the first formal record of the species, genus and family for the country. This increases the number of families of the order Mantodea in continental North America to 13.

Key words: mantids; soothsayer; Dictyoptera

RESUMEN. Se registra a la mantis *Macromantis nicaraguae* Saussure and Zehntner, 1894 (Mantodea: Photinaidae) para el estado de Chiapas, México, siendo el primer registro formal de la especie, género y familia para el país. Esto incrementa el número de familias del orden Mantodea en Norteamérica continental a 13.

Palabras clave: mantis; campamochas; Dictyoptera

INTRODUCTION

In the latest checklist of mantises (Insecta: Dictyoptera: Mantodea) from continental North America (Canada, USA and Mexico), the diversity of this order of polyneopterans was cited to be 12 families, 29 genera and 76 species (de Luna & Hernandez-Baltazar, 2020). There have been recent additions to the North American mantis fauna (Anderson, 2021 a, b; 2022), as well as at least one omission (de Luna & Granados-Corea, 2022).

The mantis family Photinaidae is very variable when it comes to overall morphology, size, and coloration (Rivera & Svenson, 2016). It is comprised by 48 species grouped into 11 genera that are mostly found in South America (Rivera & Svenson, 2016), with the sole exception being the genus *Macromantis* Saussure, 1871 which has also been documented in Central America as far north as Nicaragua (Roy, 2002; Rivera & Svenson, 2016, 2020). As the name of the genus implies, the species of *Macromantis* are characterized for being very large mantises, with body lengths ranging from 80 to 110 mm (Fig. 1), this distinguishes them from the rest of the members of the family which rarely reach 70 mm (Rivera & Svenson, 2016). This genus has four species: *Macromantis hyalina* (de Geer) from Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname and Venezuela; *Macromantis nicaraguae* Saussure and Zehntner, 1894 from Belize, Costa Rica, Guatemala, Nicaragua, Brazil, Colombia and Peru; *Macromantis ovalifolia* (Houttuyn in Stoll) from Brazil, French Guiana, Peru and Suriname; and *Macromantis saussurei* Roy, 2002 from Bolivia, French Guiana, Guyana (?), Suriname and Venezuela (Roy, 2002; Rivera & Svenson, 2020).

In the work of de Luna and Hernandez-Baltazar (2020), the authors decided to include the genus *Macromantis* in their key to the genera of North American mantises even though no species of this genus were included in their checklist, as they could not confirm a record of *Macromantis nicaraguae* from Chiapas that was mentioned in a non-peer reviewed publication (Núñez-Vázquez, 2006). The latest revision of the genus did not include any Mexican records (Roy, 2002), however, there are a few photographic records in the citizen science platform iNaturalist (2023) that supported the record from Chiapas of Núñez-Vázquez (2006).

During a brief visit to the Colección Nacional de Insectos (CNIN) of the Universidad Nacional Autónoma de México (UNAM), the first and third authors had the challenging opportunity to sort the 1238 specimens of Mantodea deposited there. In this publication, we formally record *Macromantis nicaraguae* for Chiapas, Mexico, via the examination of specimens deposited in two biological collections.

MATERIALS AND METHODS

In June 2023, a visit to the CNIN-UNAM was realized, there, a total of 7 large, green-colored mantises (Fig. 1) were examined. The specimens were identified to family and genus level using the keys of Rivera and Svenson (2016) and de Luna and Hernández-Baltazar (2020), keying to *Macromantis*, then they were identified to species level using the key and descriptions of Roy (2002) as *Macromantis nicaraguae*. An additional specimen also identified as this species is deposited in the entomological collection of the Estación de Biología Chamela (EBCh) of the UNAM.

RESULTS

Order **MANTODEA** Burmeister

Superfamily **Acanthopoidea** Burmeister

Family **Photinaidae** Giglio-Tos

Subfamily **Macromantinae** Brunner von Wattenwyl

Genus *Macromantis* Saussure, 1871*Macromantis nicaraguae* Saussure and Zehntner, 1894

Figs. 1, 2

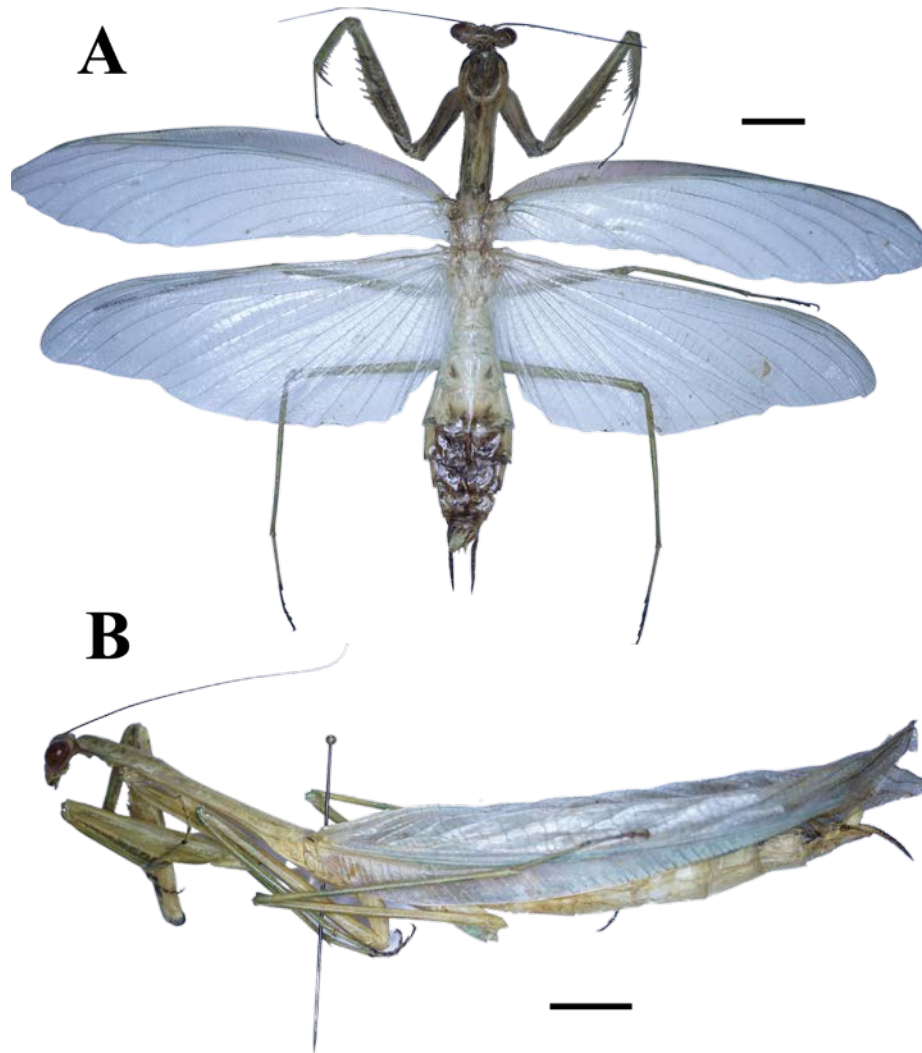


Figure 1. *Macromantis nicaraguae* (Photinidae), male specimens; A) Pinned with wings extended, dorsal view. B) Pinned with wings folded, lateral view. Scale bars = 10 mm.

Material examined. MEXICO. Chiapas: Reserva Montes Azules, Estación Chajul, municipality of Ocosingo, 28 April – 5 May 1986, coll. F. Arias, R. Barba and L. Cervantes, 1 ♂ pinned with wings folded (CNIN-UNAM); Agua Azul, 1 May 1978, coll. E. Barrera, 4 ♂ pinned with wings folded (CNIN-UNAM); Bonampak, municipality of Ocosingo, 25 May 1977, 2 ♂ pinned with wings extended (CNIN-UNAM). Chajul, Ocosingo, 14-17 April 1986, coll. R. Ayala, 1 ♂ pinned with wings folded (EBCh-UNAM).

Differential diagnosis. According to the characters used in the key of de Luna and Hernández-Baltazar (2020), the following characters can be used to distinguish *Macromantis* from the rest of the North American mantis genera: The body of *Macromantis* is not stick-like (Fig. 1), as in Angelidae, Coptopterygidae, and most Thespidae. *Macromantis* has more than 5 posteroventral

(external) spines in the anterior femora, usually 6 (Figs. 1A, 2), unlike the members of the families Angelidae, Epaphroditidae, Liturgusidae, Mantidae, Miomantidae and Thespidae native or introduced to the region, which all have 4 or less. The pronotum is elongated (Fig. 1), not squared as in Mantoididae. The body is not dorsoventrally flattened (Fig. 1B) as in Epaphroditidae and Liturgusidae. There are no dorsal spines in the foretibiae (Figs. 1A, 2), as in most North American Thespidae. The cerci are not flattened (Fig. 1) as in Angelidae. It is much larger (80–110 mm) (Fig. 1) than Acontistidae and Mantoididae (usually less than 30 mm). It does not possess tegmina shaped as dry leaves (Fig. 1) as in Acanthopidae. Both sexes are green colored, macropterous, very large (Fig. 1), and live among the vegetation; this contrasts with Amelidae, which in North America are relatively small ground-dwelling mantises which can be apterous (females only), brachypterous (both sexes), or macropterous (males only), and are usually gray or grayish brown in color. It lacks the paired tubercles in the frons as well as large spots in the hindwings (Fig. 1A) that are present in the introduced Eremiaphilidae.

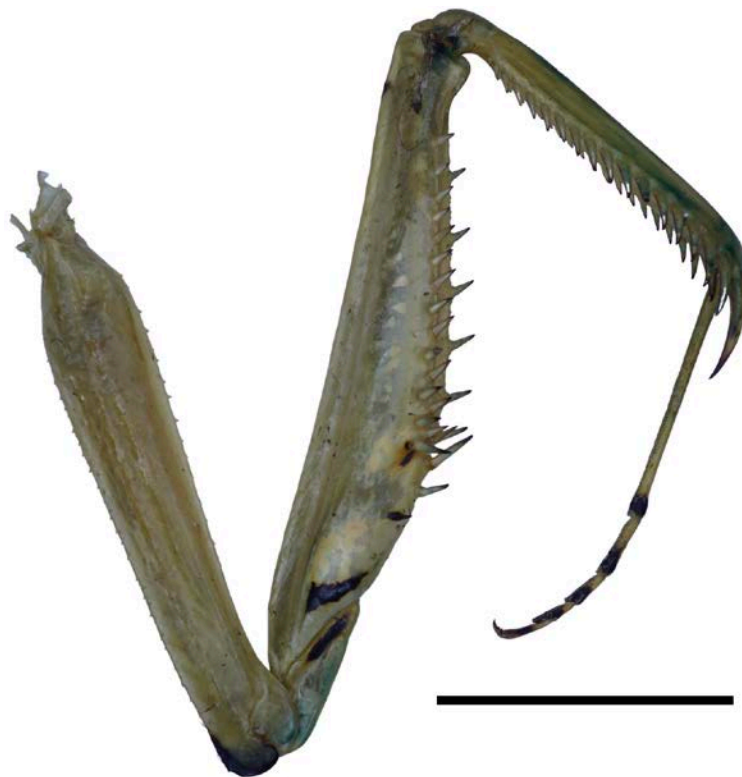


Figure 2. *Macromantis nicaraguae* (Photinaidae), foreleg of male, anteroventral (internal) view; scale bar = 10 mm.

Following Roy (2002), *Macromantis nicaraguae* can be differentiated from congeners by the following characters: Both sexes of *Macromantis nicaraguae* usually have 6 posteroventral (external) spines, seldom more (Figs. 1A, 2), while *Macromantis ovalifolia* usually has 5, rarely 4 or 6. The cerci in both sexes are long (Fig. 1), unlike in *Macromantis ovalifolia*; and have an elongated last segment (Fig. 1), unlike in *Macromantis hyalina*. The costal area of the tegmina of the male *Macromantis nicaraguae* has its proximal fourth hyaline while the rest is opaque (Fig. 1B), this is different from the male *Macromantis hyalina* which has the entire costal area hyaline, and from the male *Macromantis saussurei* Roy, 2002 which has the entire costal area opaque. The males of *Macromantis nicaraguae* possess a black line in the anteroventral (internal) aspect of the anterior

trochanter (Fig. 2), absent in the males of *Macromantis saussurei*. The costal area of the tegmina of the female *Macromantis nicaraguae* is a little wider than the discoidal area, unlike in *Macromantis ovalifolia* in which the width of these areas is subequal, and in *Macromantis saussurei* in which the costal area is 1.20 to 1.35 times wider than the discoidal area.

CONCLUSIONS

The North American mantis fauna is represented by 13 families, among these is the family Photinaidae with a single representative, *Macromantis nicaraguae*, this species is hereby recorded for the state of Chiapas, Mexico. These records represent the first formal mentions of the species, genus, and family for Mexico as well as the northernmost distribution points for the species.

ACKNOWLEDGMENTS. The authors thank the Society of Systematic Biologists for providing MdL with funding through the Mini-ARTS grant awarded to the project “Preliminary research on four cockroach families (Blaberidae, Blattellidae, Nyctiboridae, and Pseudophyllodromiidae) from Mexico”. We also want to thank Dr. Alejandro Zaldívar Riverón and M.Sc. Christina Mayorga Martínez for allowing the first and third authors to examine the specimens at the CNIN-UNAM. Our gratitude extends to the anonymous reviewers for their hard work.

LITERATURE CITED

- Anderson, K. (2021a) A new species of *Stagmomantis* Saussure, 1869 from North America. *Soothsayer, Journal of Mantodea Research*, 2 (1), 86–96.
<https://doi.org/10.5281/zenodo.5523338>
- Anderson, K. (2021b) Revision of the Nearctic Genus *Litaneutria* Saussure, 1892. *Soothsayer, Journal of Mantodea Research*, 2 (1), 3–85.
<https://doi.org/10.5281/zenodo.5523351>
- Anderson, K. (2022) Revision of the North American Genus *Bistanta* Anderson, 2018. *Soothsayer, Journal of Mantodea Research*, 3 (1), 1–47.
<https://doi.org/10.5281/zenodo.6533412>
- de Luna, M., Hernández-Baltazar, E. (2020) Diversidad de mantis (Insecta: Mantodea) de Norteamérica, con una clave de identificación ilustrada para familias y géneros. *Boletín de la Sociedad Entomológica Aragonesa*, 67, 155–164.
- de Luna, M., Granados-Corea, Y. A. (2022) Synopsis of the mantises (Insecta: Mantodea) of Nuevo Leon, Mexico. *Acta Zoológica Mexicana (nueva serie)*, 38, 1–13.
<https://doi.org/10.21829/azm.2022.3812514>
- iNaturalist (2023).
https://www.inaturalist.org/observations?place_id=6793&taxon_id=624787
 (consulted 5 October 2023).
- Núñez-Vázquez, C. (2006) *Situación actual del orden Mantodea en la Península de Yucatán, México*. Unpublished Bachelor Thesis, Instituto Tecnológico de Conkal, Mérida, Yucatán, México.
- Rivera, J., Svenson, G. J. (2016) The Neotropical ‘polymorphic earless praying mantises’ – Part I: Molecular phylogeny and revised higher-level systematics (Insecta: Mantodea, Acanthopoidea). *Systematic Entomology*, 41, 607–649.
<https://doi.org/10.1111/syen.12178>

- Rivera, J., Svenson, G. J. (2020) The Neotropical polymorphic earless praying mantises: A taxonomic review of the genera and checklist of species. *Entomological Society of America*, Maryland, USA.
- Roy, R. (2002) Révision du genre néotropical *Macromantis* Saussure, 1871 (Dictyoptera, Mantidae). *Bulletin de la Société entomologique de France*, 107, 403–418.
- Saussure, H. de (1871) Memories pour servir a L'Histoire Naturelle du Mexique, des Antilles et États-Unis – IV. Synopsis des Mantides americains. *Genève & Bâle*, 4, 5–816.
- Saussure, H. de, Zehntner, L. (1894) Insecta-Orthoptera Vol. I. Fam. Mantidae. Pp. 123–197. *In*: R. H. Porter (Eds.). *Biologia Centrali-Americana*, Londres, United Kingdom.