Leptoglossus dilaticollis (GuÉRin-MÉNeville) (Hemiptera: Coreidae) on magnolia alejandrae (Magnoliaceae) in Northeast Mexico

Authors: Gallardo-Yobal, S. I., Chacón-Hernández, J. C., Reyes-Zepeda, F., Vázquez-García, J. A., Monjarás-Barrera, J. I., et al.

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NOTE

Leptoglossus dilaticollis (Guérin-Méneville) (Hemiptera: Coreidae) on *Magnolia alejandrae* (Magnoliaceae) in Northeast Mexico

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The genus *Leptoglossus* Guérin-Méneville (Hemiptera: Coreidae) is one of the most diverse and complex taxa of Anisoscelini in the Western Hemisphere. It includes 62 species distributed from southern Canada, throughout the United States, Mexico, the Antilles, Central America, and South America (Brailovsky 2014, Brailovsky and van der Heyden 2019, CoreoideaSF Team 2020). Species of the genus feed on the seeds in developing and mature fruit of different species of caricaceous, loranthaceous, bixaceous, pinaceous, magnoliaceous, cucurbitaceous, solanaceous plants (Wheeler and Miller 1990, Schaefer and Mitchell 1983, Bates et al. 2000, Bracalini et al. 2013). They insert their syringe-shaped stylets through the cone scale and into individual seeds, the contents of which are dissolved by the bug's salivary enzymes, allowing them to remove the liquified contents. Feeding does not harm the cone, but the seeds usually are damaged or killed. This feeding injury, which can be detected only by dissection or X-ray radiograph, causes empty or partially filled seeds to abort. Even mild damage to the endosperm can reduce successful germination. In addition, the penetration of the stylets into the seed provides a port of entry for pathogens (DeBarr 1970, Bates et al. 2000, Bracalini et al. 2013).

Leptoglossus dilaticollis is distributed widely in Brazil, Central America, and Mexico (Allen 1969, Brailovsky 2014, Brailovsky and van der Heyden 2019). In Brazil, it is found on cocoa and *Magnolia* sp. (Monte 1937) and *Michelia champaca* L. fruits (Magnoliaceae), a species not native of Brazil (Schaefer et al. 1997).

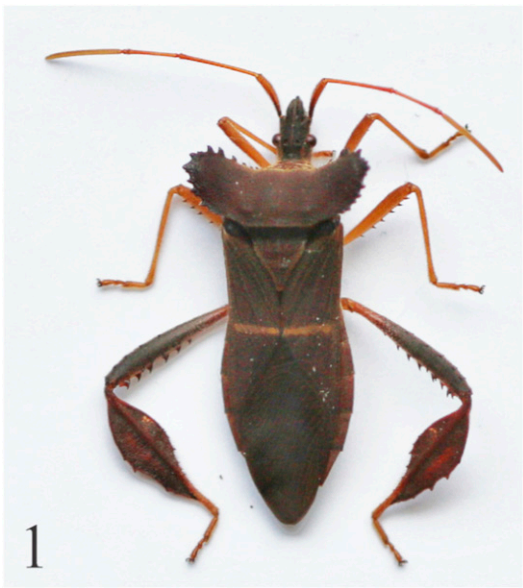
In 2017, *Magnolia alejandrae* García-Morales and Iamonico (Magnoliaceae) was described as a new species (García-Morales et al. 2017), with a narrow distribution in eastern Sierra Madre (west of Tamaulipas state). Three populations of *M. alejandrae* were found in two municipalities (Victoria and Jaumave) 1500–1600 meters above sea-level, growing in cloud forests or humid forests of pines and oaks (García-Morales et al. 2017). The same authors assessed the conservation status of *M. alejandrae* based in IUCN Red List criteria published in 2014. They determined that the species is Critically Endangered (CR) and Endangered (EN), under their criteria Ba (number of localities less than 5) and C (small populations that are currently declining or may decline in the near future). The majority of magnolias have few insect pest and disease problems (Knox et al. 2012). In a review carried out from 2017 to 2019 in the Web of Science database, no report was found on any arthropod associated with *M. alejandrae*, undoubtedly because the species was recently described. Therefore, this note reports, for the first time, the occurrence of *L. dilaticollis* feeding on *M. alejandrae* in northeastern Mexico.

Adults and nymphs of an unidentifed coreid were collected on *M. alejandrae* fruits in Rancho El Molino, Victoria municipality, Tamaulipas state, Mexico

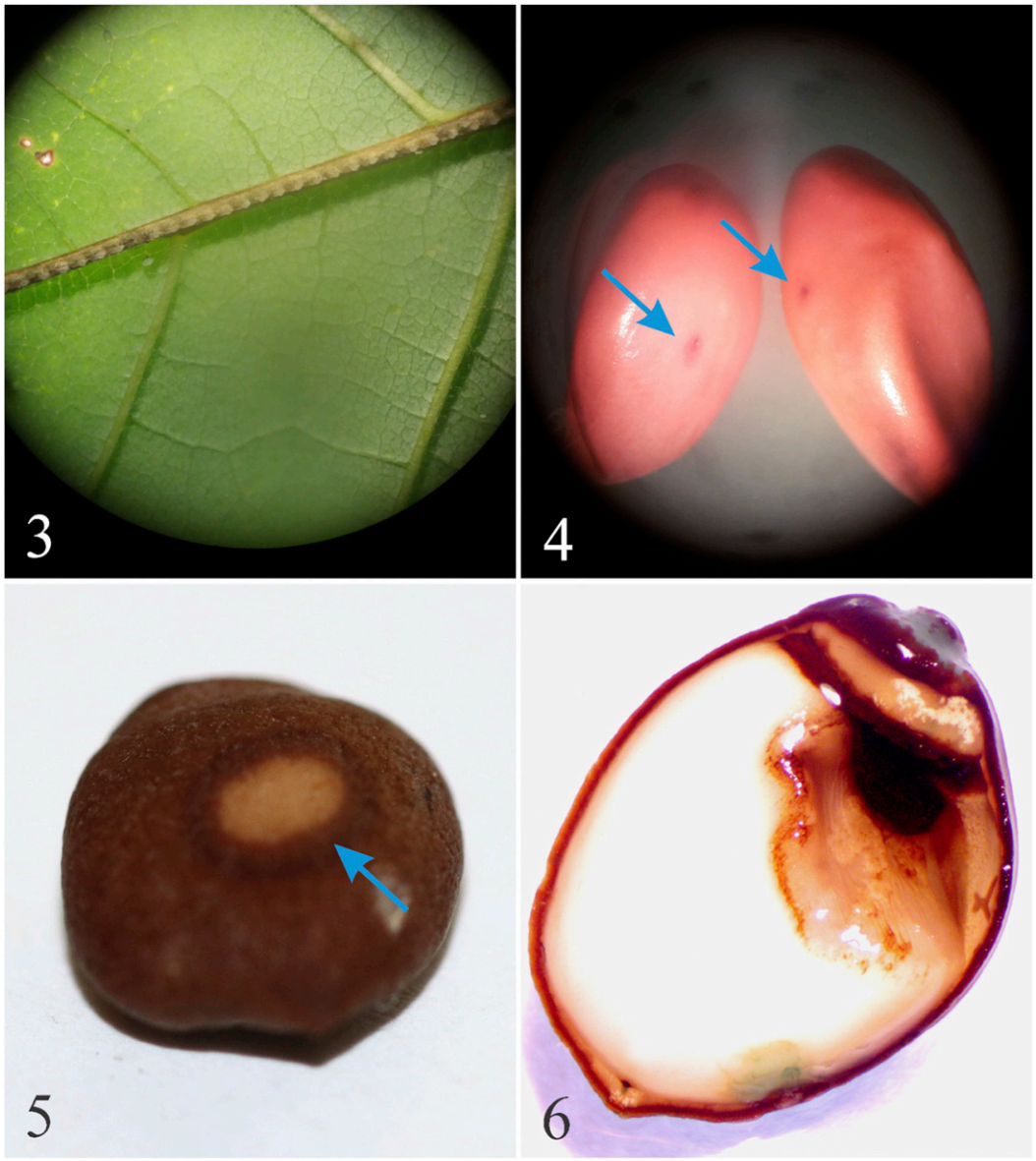
(23°45'57.00" N and 99°19'35.00" W, 1524 m elev.). The specimens were preserved in 70% alcohol and transported to the Population Ecology Laboratory, Institute of Applied Ecology, Autonomous University of Tamaulipas in Victoria City, Tamaulipas state, Mexico. This material was identified as *Leptoglossus dilaticollis* (Figs. 1, 2) using the taxonomic keys in Allen (1969), Brailovsky (2014), and Brailovsky and van der Heyden (2019).

Leptoglossus dilaticollis females laid eggs in a simple chain along the midrib of the abaxial leaf surface of *M. alejandrae* (Fig. 3). This form of oviposition is characteristic of other *Leptoglossus* spp. (Heidemann 1910, Wheeler and Miller 1990, Mitchell and Mitchell 1983). An average of 46.00 ± 6.55 (± SD) seeds per cone were collected (n = 4 cones), in which 35% of seeds were damaged. Feeding by *L dilaticollis* adults (Fig. 1) and nymphs (Fig. 2) caused injury to *M. alejandrae* seeds, which included small necrotic spots (Figs. 4, 5). Holes were detected in the seed coat only when the seeds were dissected (Fig. 6). Similar feeding damage has been observed for *Leptoglossus fulvicornis* Westwood, *L. corculus* Say, and *L. occidentalis* Heidemann on *Magnolia* spp., *Pinus taeda* L. (Pinaceae), and *Pseudotsuga menziesii* (Mirb.) Franco (Pinaceae), respectively (DeBarr 1970, Wheeler and Miller 1990, Bates et al. 2000, Bracalini et al. 2013).

Leptoglossus spp. are known to cause severe damage to seeds of other plant species. For example, the third, fourth, and fifth instars and adults of *L. corculus* caused 29.4, 51.3, 55.9 and 36.3% of seed loss from the cones of *Pinus. taeda* (Williams and Goyer 1980), and *L. occidentalis* reduced seedling emergence of *Pseudotsuga menziesii* by more than 80% (Bates et al. 2001). According to Parlak (2017), the damage caused by *Leptoglossus* spp. that attack cone-like fruits can affect the rejuvenation of natural forests. In conclusion, it will be necessary to conduct additional studies to assess the potential damage *L. dilaticollis* causes to *M. alejandrae* seeds using, for example, X-ray radiography and



Figs. 1–2. *Leptoglossus dilaticollis*. 1, Adult female. 2, Nymph on *M. alejandrae* cone-like fruit.



Figs. 3–6. Damage caused to *Magnolia alejandrae* seeds by *Leptoglossus dilaticollis*. 3, Eggs in chain on the midrib of a leaf. 4, *Magnolia alejandrae* fresh seed (blue arrows indicate damage to the sarcotesta (fleshy red part, sclerotesta envelope) where its syringe-shaped mouthparts are inserted). 5, Damaged seed (blue arrow shows a clear spot on the seed, where the sclerotesta (hard part of the seed) has healed). 6, Dissected fresh seed.

viability of the seeds. Additionally, a study of the life cycle of *L. dilaticollis* is needed before chemical or biological control strategies can be implemented.

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S. I. Gallardo-Yobal, J. C. Chacón-Hernández, F. Reyes-Zepeda, J. A. Vázquez-García, J. I. Monjarás-Barrera, S. Ordaz-Silva, and I. V. López-Sánchez. *(SIG-Y, JCC-H, FR-Z and JIM-B) Instituto de Ecologíá Aplicada, Universidad Autónoma de Tamaulipas. Ciudad Victoria, Tamaulipas; (SIG-Y) Tecnológico Nacional de México/ ITS de Huatusco. Veracruz, México; (JAV-G) Universidad de Guadalajara Centro Universitario de Ciencias Biológicas y Agropecuarias. Zapopan, México; and (SO-S and IVL-S) Facultad de Ingeniería y Negocios San Quintín, Universidad Autónoma de Baja California. San Quintín, Baja California, México. (Corresponding author e-mail: jchacon@docentes.uat.edu.mx).*