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SCIENTIFIC NOTE

First record of the genus *Pygiopachymerus* Pic (Coleoptera: Chrysomelidae: Bruchinae) for Mexico

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Abstract: Examination of the Bruchinae collection in the National Museum of Natural History (USNM), revealed the first records of *Pygiopachymerus lineola* Chevrolat, 1871 for Mexico; with three specimens from the states of Guanajuato and Oaxaca, and a new host, *Tamarindus indica*, belonging to Caesalpinioideae (Fabaceae). This represents an increase in the knowledge of seed beetles biodiversity in Mexican territory from 28 to 29 genera. Illustrations and morphological description diagnostic are added.

Key words: *Pygiopachymerus*, Bruchinae, Bruchinae, Mexico, seed beetles.

Data Text

According to Romero & Johnson (2004), the most recent checklist of Mexican Bruchinae (seed beetles), there are 23 genera in the country, among which were included *Abutiloneus* Bridwell, 1946; *Acanthoscelides* Schilsky, 1905; *Algarobius* Bridwell, 1946; *Amblycerus* Thunberg, 1815; *Callosobruchus* Pic, 1902; *Caryedes* Hummel, 1827; *Caryedon* Schoenherr, 1823; *Caryobruchus* Bridwell, 1929; *Cosmobruchus* Bridwell, 1931; *Ctenocolum* Kingsolver & Whitehead, 1974; *Dahlibruchus* Bridwell, 1931; *Gibbobruchus* Pic, 1913; *Margaritabruchus* Romero & Johnson, 2001; *Megacerus* Fåhraeus, 1839; *Meganeltumius* Romero & Johnson, 2003; *Meibomeus* Bridwell, 1946; *Merobruchus* Bridwell, 1946; *Mimosestes* Bridwell, 1946; *Neltumius* Bridwell, 1946; *Pachymerus* Thunberg, 1805; *Senniuss* Bridwell, 1946; *Stator* Bridwell, 1946; and *Zabrotes* Horn, 1885. Later, Johnson & Romero (2006) added *Neobruchidius* to the list. Then Romero *et al.* (2009) reported one species of the African genus *Specularius* Bridwell, 1938 attacking seeds of

Erythrina spp. in central Mexico. Two more genera, *Speciomerus* Nilsson, 1993 and *Stylantheus* Bridwell, 1946, were added to the list from material reviewed at Colección Entomológica del Instituto de Fitosanidad del Colegio de Postgraduados (CEAM) and Colección Nacional de Insectos (CNIN) collections (Romero 2009). Finally, *Decellebruchus* Borowiec, 1987 was incorporated to the list (Romero 2016b), resulting in a total of 28 genera of Bruchinae for Mexico.

However, upon examining the collection of Bruchinae in the National Museum of Natural History (USNM), Smithsonian Institution, during August 2016, some specimens of a seed beetle genus not previously recorded for Mexico were found.

Three specimens of *Pygiopachymerus lineola* (Chevrolat 1871) were discovered and borrowed from the USNM Bruchinae collection (Alexander Konstantinov, curator). The identification was based in Kingsolver (1970b) and techniques of Kingsolver (1970a), modified by Romero & Johnson (1999), were used for the male genitalia dissection.

The external habitus and anatomy for male and female were obtained with an Olympus® SZX7 stereoscopic microscope with a Fiber-Lite® MI-150 light source, an Olympus® E-620 digital camera, and Olympus Studio® 2.22 software. The male genitalia images were obtained with the microscope digital camera AmScope® 5mm, model MW 1000, adapted to an optical microscope, Zeiss® Axiostar, and using AmScope® software version X86, 3.7.3980. All images were processed and edited by means of Gimp 2, CombineZP and ImageJ, all free software.

Pygiopachymerus lineola Chevrolat, 1871

Diagnosis. Male. Integument reddish to mahogany brown, with large darker markings on the elytra and pronotum (Fig. 1a, 1b); vestiture of dark brown, golden, fulvous and cinereous pubescence (Fig. 2a, 2b); antennal segments 5-10 dark brown, the rest pale orange (Fig. 1c, 1d); scutellum very small and inconspicuous; pronotum with latero-basal gibbositities; bases of elytra with prominent transverse ridgelike teeth; elytra rough only in basolateral one-half; metasternum evenly rounded in profile; pro and mesolegs orange, metafemur mahogany brown and mesotarsi orange (Fig. 2a, 2b); metafemur surpassing apex of abdomen in length, not rough dorso apically; ventrolateral margin of metafemur with row of short teeth; metatibia curved, fitting into sulcus of femur, apex angulate with blunt mucro; pygidium largely glabrous in apical half, with scattered coarse foveae, and with apical or subapical elongated tuft of white setae (Fig. 1d); abdominal sterna with large polished areas (Fig. 2a); fifth abdominal sternite emarginated at the apex. Male genitalia median lobe with alated lateral processes, covered with dense slender spicules; armature of internal sac with one medially sharp triangular spine near apice; large and dense rows of microgranular sclerites in the first third, followed by a medial line of triangular microspinules in the center; finally, irregular paired inner sac extensions (Fig. 2d); lateral lobes short, round broad, deeply cleft, and covered with dense slender spicules (Fig. 2c).

Female. Similar to the male, except the fifth abdominal sternite not emarginated at the apex; pygidium with short tuft of white pubescence at apical or subapical region (Fig. 1f).

Examined material (3) and notes. MEXICO: 20/II/1961, intercepted in Nogales, Arizona (#83336, 61-8408), from *Tamarindus indica* L. pods (USNM 1 ex ♂); MEXICO: GUANAJUATO, 15/II/1962 (USNM 1 ex ♀), specimen exhibits damage to right elytral apex, identified previously as *Phelomerus aberrans*; MEXICO: OAXACA, intercepted in Laredo, Texas (#9214, 76-2984), accompanied with a *Cassia fistula* L. pod, 28/VIII/1976 (USNM 1 ex ♂), specimen has teratology at left elytral apex.

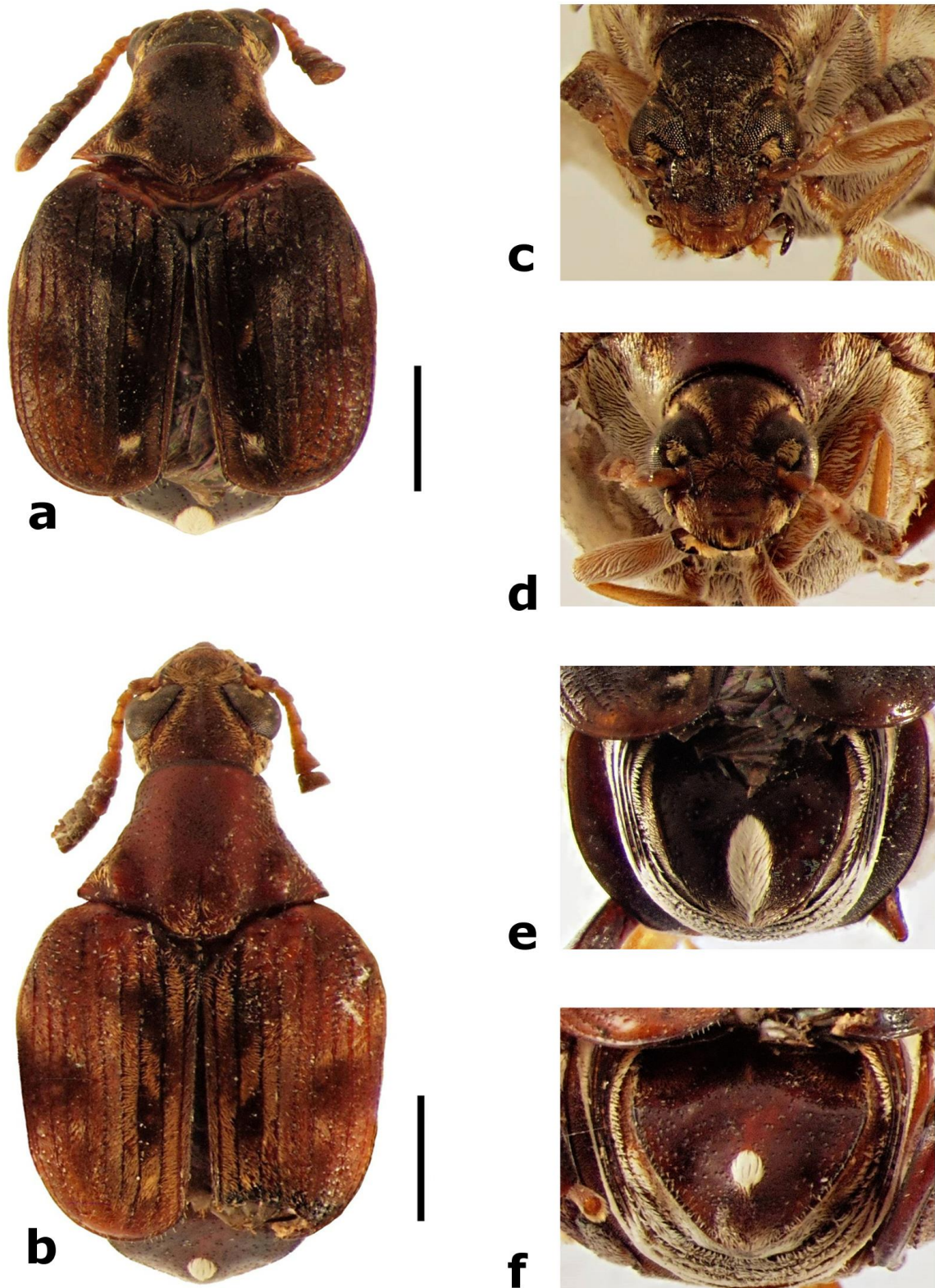


Figure 1. *Pygiopachymerus lineola* Chevrolat, 1871. **a**, male, dorsal view; **b**, female, dorsal view; **c**, male, head anterior view; **d**, female, head anterior view; **e**, male pygidium; **f**, female pygidium. Scale bars: 1 mm.

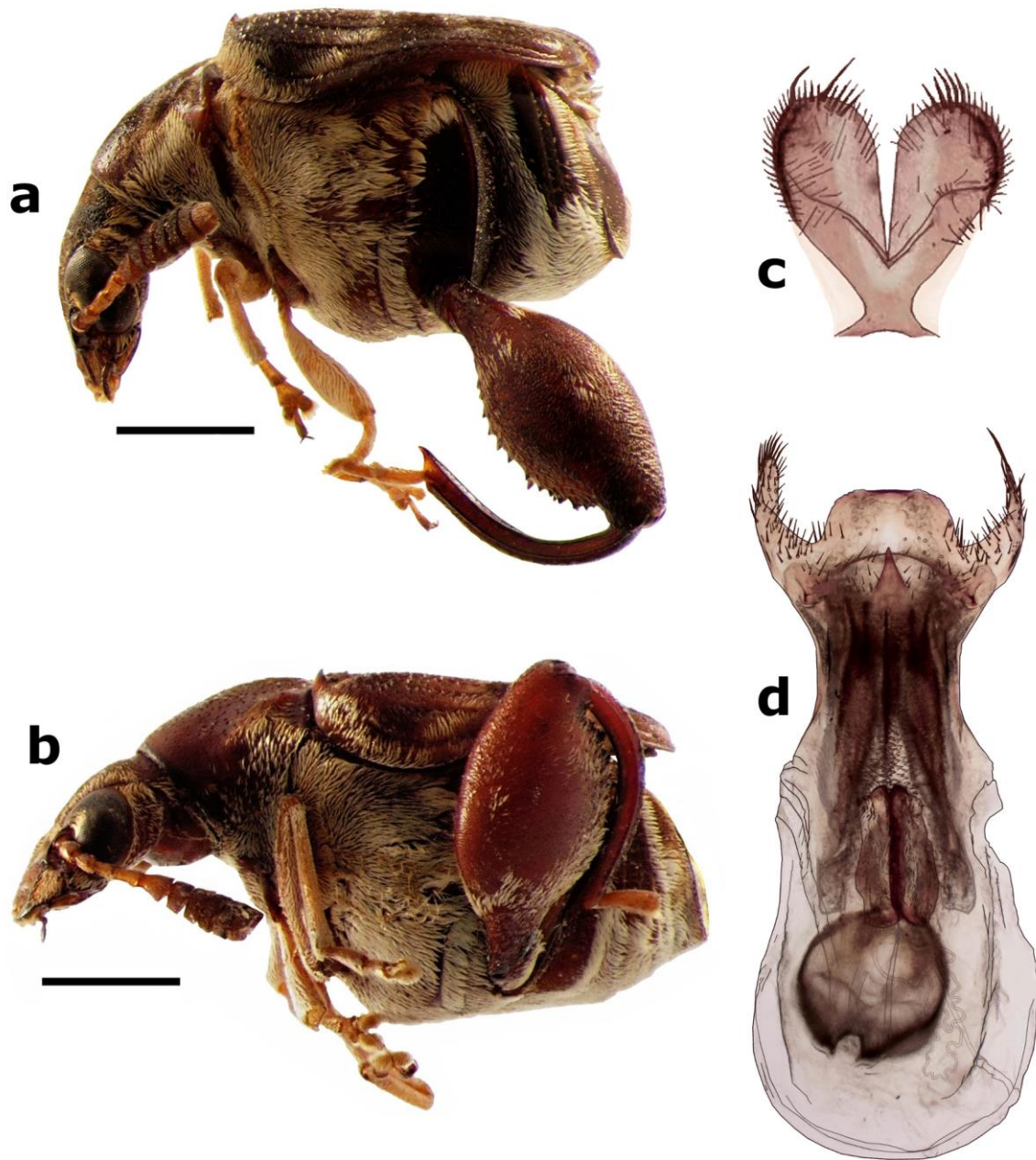


Figure 2. *Pygiopachymerus lineola* Chevrolat, 1871. **a**, male, lateral view; **b**, female, lateral view; **c**, lateral lobes of male genitalia; **d**, median lobe of male genitalia. Scale bars: 1 mm.

Pygiopachymerus is a small seed beetle genus represented by only two species, and its distribution is exclusively Neotropical (Kingsolver 1970b). *Pygiopachymerus theresae* Pic, 1911 is distributed in Colombia and Panama, and introduced in Switzerland; and *P. lineola* has been known from Belize, Brazil, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Trinidad and Tobago, and Venezuela; and is introduced in Tahiti (Romero 2016a).

Species in this seed beetle genus have a limited number of host plants, all of them belonging to the subfamily Caesalpinioideae in Fabaceae. *P. theresae* feeds on *Cassia fistula*

L. and *C. grandis* L. f.; while *P. lineola* feeds on *C. ferruginea* (Schrader) DC., *C. fistula*, *C. grandis*, *C. javanica* L., *C. javanica nodosa* (Buch. Ham. ex Roxb.) K. Larsen & S. S. Larsen, *C. leptophylla* Vogel, *C. moschata* Kunth, *Cassia* sp.; *Delonix* sp.; *Hymenaea courbaril* L., *Hymenaea* sp.; *Poinciana* sp.; *Senna bicapsularis* (L.) Roxb., and *S. spectabilis* (DC.) H. S. Irwin & Barneby (Romero 2016a).

With these new data, the distribution of *Pygiopachymerus lineola* is extended to Mexico, and *Tamarindus indica* L. is recorded as a new host plant, thus increasing the number of Mexican genera of Bruchinae to 29.

Figures about this species in this work represent the most completed and accurated image set since Kingsolver drawings in 1970b.

The most relevant finding was to increase our knowledge about the biodiversity of seed beetles in Mexican territory; and at the same time reflect about exploring distinct entomological collections and natural ecosystems in search of new taxa.

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