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Discovery of a new fossil species of *Mastogenius* Solier, 1849 from Eocene Baltic amber (Coleoptera: Buprestidae: Polycestinae)

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Abstract

To date, only two named species of Buprestidae have been described from Eocene Baltic amber. Based on a well-preserved adult specimen, a new species, *Mastogenius aquilonaris* **sp. nov.**, is described from Baltic amber as the second fossil species of the genus *Mastogenius* Solier, 1849. This discovery reveals the further hidden paleodiversity of jewel beetles during the Eocene. Furthermore, our finding of the second Baltic amber species of this genus—now remarkably diversified primarily in the Neotropics—holds significant paleobiogeographical interest. We discuss not only the zoogeographical insights but also potential host plant families and paleoclimate.

Key words: Haplostethini, jewel beetles, Paleogene, Europe, new species, zoogeography, paleoclimate

Introduction

Buprestidae, commonly known as jewel beetles or metallic wood-boring beetles, are a megadiverse family of polyphagan beetles, with nearly 16,000 described species occurring in all zoogeographical regions (Bellamy 2008; Evans *et al*. 2015; Jendek 2024). They are entirely phytophagous insects, likely representing one of the most ideal models for examining evolutionary biology of host-plant associations, host shifts, and plant-mediated ecological speciation (e.g., Jendek & Poláková 2014; Pellegrino *et al*. 2018; Tamadera 2025). Currently, Buprestidae are classified into the following one extinct and six extant subfamilies (Cai *et al*. 2022; Bouchard *et al*. 2024): Julodinae Lacordaire, 1857; Polycestinae Lacordaire, 1857; Galbellinae Reitter, 1911; Chrysochroinae Laporte, 1835; Buprestinae Leach, 1815; Agrilinae Laporte, 1835, and; †Parathyreinae Alexeev, 1994. While large-scale phylogenetic analyses based on molecular data have confirmed that the current higher-level classification system is generally valid, resolving issues on the subfamily level that have simultaneously come to light may necessitate future reorganization (Evans *et al*. 2015).

The polycestine genus *Mastogenius* Solier, 1849 belongs to the tribe Haplostethini LeConte, 1861, which occupies a small portion of the subfamily containing 39 extant species and two fossil species (Bellamy 2008; Levey 2016; this study). The extant species of *Mastogenius* have been recorded from the Afrotropical (1 sp. in Madagascar), Nearctic (7 spp.), Neotropical (30 spp.), Oriental (2 spp.), and Palaearctic (1 sp. in Japan) Regions; consequently, three-quarters of the total number of *Mastogenius* species are known from Latin America, indicating that significant speciation and diversification events had been occurred in that region. The members of *Mastogenius* are generally small in their body sizes and blackish colored, unflashy buprestids. As far as known, they are wood (twig) borers associated with flowering plants in the larval stage (e.g., Bellamy 2002; MacRae & Basham 2024), though knowledge of their biology is quite limited.

Fossil records of the buprestids are rather prevalent from the Mesozoic (Jurassic–Cretaceous) and Cenozoic (summarized in Kwast & Alekseev 2025), but some of these records should be considered as dubious, pending reliable verifications for their definitive familial assignments (Li *et al*. 2023; Kwast & Alekseev 2025). To date, several

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jewel beetle fossils of both adults and larvae have been known from Eocene Baltic amber, but only two species have been formally described (see Li *et al*. 2023 and Kwast & Alekseev 2025 with references therein). After *Mastogenius primaevus* Obenberger, 1957 was first named from Baltic amber (Obenberger 1957), it took over half a century before the second species, *Phaenops gutowskii* Kwast & Alekseev 2025, was subsequently described from the same amber deposit (Kwast & Alekseev 2025). Both belong to extant genera, and it is suggested that their assemblages clearly differ from those found in Kachin amber from northern Myanmar (Jiang *et al*. 2021; Li *et al*. 2023; Yamamoto, unpublished data), from which only extinct genera dating to the mid-Cretaceous are known (Albian–Cenomanian; *ca*. 99 Ma).

In this study, we formally describe a third species of Buprestidae from Eocene Baltic amber, which simultaneously represents the second extinct species of the genus *Mastogenius*.

Material and methods

The unique Baltic amber specimen studied herein originated from amber mines near the Baltic Sea coast of Yantarny, Kaliningrad Oblast, westernmost Russia. The amber piece containing the holotype adult is deposited in the Systematic Entomology collection (SEHU, curator Dr. M. Ôhara) of the Hokkaido University Museum (HUM), Hokkaido University, Sapporo, Japan, with the following accession number: SEHU-0000121256. The precise age of Baltic amber has previously remained a subject of ongoing debate (e.g., Bogri *et al*. 2018), with researchers particularly divided on whether it dates to the Middle or Late Eocene. However, a recent review study (Ross *et al*. 2026) proposed the Upper Eocene age of Baltic amber, ca. 36 Ma (Priabonian). For the purposes of this study, we tentatively follow Ross *et al*. (2026).

Detailed morphological observations were conducted using a Leica M205C stereomicroscope. During photography of the holotype, the entire piece of amber was submerged in clove oil, which has a refractive index nearly identical to that of amber, to facilitate clear imaging of the fossil. Most images were taken using a Canon EOS 90D digital camera with a Canon MP-E 65 mm F2.8 1–5× macro lens and a Canon MT-24EX twin flash. The single image of the scutellar shield was photographed using an EOS 90D digital camera equipped with a LAOWA Aurogon FF 10× NA0.5 Supermicro APO lens and a MT-24EX twin flash. Multiple exposures of each image were stacked in Helicon Focus ver. 8.2.0 or 8.3.0 and further processed in Adobe Photoshop 2025 (ver. 26.9.0).

Terminology of general morphology follows Lawrence & Ślipiński (2013). Measurement method follows Tamadera (2025). This study follows the generic concept of Manley (1986b) as adopted by major catalogs (e.g., Bellamy 2008; Volkovitsh 2016), but the new fossil species described below appears to match the definition of *Haplostethus* LeConte,1860 (*sensu* Tôyama 1983), currently treated as a synonymy under *Mastogenius* but distinghished by Tôyama (1983) based on the distinctly divided mesoventrite by the prosternal process.

Abbreviations are as follows: **Body:** LB = maximum length of body from apex of head capsule to apices of elytra; WB = maximum width of body. **Pronotum:** AMP = width of apical margin of pronotum; BMP = width of basal margin of pronotum; LP = maximum length of pronotum along midline; WP = maximum width of pronotum. **Elytra:** LE = length of elytra from basal margin to apices of elytra; WE = maximum width of elytra.

Systematic paleontology

Order Coleoptera Linnaeus, 1758
Superfamily Buprestoidea Leach, 1815
Family Buprestidae Leach, 1815
Subfamily Polycestinae Lacordaire, 1857
Tribe Haplostethini LeConte, 1861
Genus *Mastogenius* Solier, 1849

Mastogenius Solier, 1849: 507 (type species: *Mastogenius parallelus* Solier, 1849, by monotypy); Tôyama, 1983: 56 (redefined); Manley, 1896b: 233 (redefined).

Haplostethus LeConte, 1860: 253 (type species: *Haplostethus subcyaneus* LeConte, 1860, by monotypy); Kerremans, 1892: 279 (synonym of *Mastogenius*); Tôyama, 1983: 57 (resurrected; redefined); Manley, 1896b: 233 (synonym of *Mastogenius*).

See Bellamy (2008) for other literatures.

Diagnosis. Body elongate-subquadrate to -ovate, flattened dorso-ventrally; body length ca. 2–4 mm. Integument usually blackish, occasionally with dark blue, purple, green, or aeneous tints; surface usually covered by setiferous punctures. Head convex or concave on frons; eyes weakly convergent dorsad or parallel in inner margins; antennae rather long and slender, serrate from antennomere 4; pronotum with distinct marginal carina (supra-lateral or pre-lateral carina) and submarginal carina (lateral carina), with basal margin, hidden under elytral bases at rest, distinctly crenulate, without reticulate sculpture on surface. Scutellar shield small, triangular, smooth. Elytra convex in lateral view; disc more or less depressed alongside basal margin. Prosternum laterally without antennal grooves, without a longitudinal carina (extending anteriorly from prosternal process) on each side of prosternal midline. Hypomera without antennal grooves. Mesoventrite usually distinctly divided (separated) by prosternal process, namely, sternal cavity for prosternal process consisting of mesoventrite and metaventrite, but according to Tôyama (1983) the divided parts of mesoventrite in *M. parallelus* contacting with each other at one point. Abdominal ventrites without sternal grooves.

Remarks. This genus is similar in general appearance to all other nine Haplostethini genera but distinguished (except *Ankareus* Kerremans, 1894) by the combination of the following features: 1) the presence of marginal and submarginal carinae on pronotum; 2) the absence of antennal grooves on either the pronotum or hypomera; and 3) the absence of a longitudinal carina on each side of prosternal midline (Cobos 1957; Tôyama 1983; Bellamy 1996, 2002).

Ankareus is an ill-defined genus containing 28 species distributed primarily in the Afrotropical Region (African continent [11 spp.]; Madagascar [9 spp.]; Mascarine Islands [4 spp.]; Yemen [1 sp.]) and partly in the Oriental (India [1 sp.]; Sri Lanka [1 sp.]) and Palaearctic (Saudi Arabia [1 sp.]) Regions (Bellamy, 2008; Levey, 2016). *Ankareus* appears to be indistinguishable from *Mastogenius* morphologically, but several studies have taxonomically conserved this genus due to its relatively restricted distribution within the Afrotropical Region (Bellamy 1991; Levey 2016). Full revisionary studies for Haplostethini are needed in order to resolve this problem (Levey 2016).

***Mastogenius aquilonaris* sp. nov.**

(Figs. 1–3)

Type specimen. Holotype, SEHU-0000121256, a complete adult of undetermined sex, preserved in a yellowish-transparent, flattnened cabochon piece (dimensions, ca. 9.5×9.0×3.0 mm) of Baltic amber. Syninclusions: tiny stellate hairs of plants.

Etymology. This specific epithet *aquilonaris* is a Latin adjective meaning "northern", referring to its more northern distribution compared to extant congeners.

Locality and horizon. Russia: Kaliningrad Oblast, Sambian (Samland) Peninsula, Yantarny village; Baltic amber from the amber-bearing 'Blaue Erde' (Blue Earth) layers within the Prussian Formation (or 'Prussian Formation Blue Earth' member); Upper Eocene, Priabonian.

Differential diagnosis. *Mastogenius aquilonaris* is distinguished from the only other known species in Baltic amber, *Mastogenius primaevus*, by the shape of head and pronotum and body proportions (comparing with Obenberger 1957): 1) front side of the head protruding more anteriorly; 2) frontovertex 1.72 times as wide as long (*M. primaevus*: slightly wider than long); 3) pronotum 1.88 times as wide as long (*M. primaevus*: slightly more than twice as wide as long); 4) pronotal lateral margins rounded throughout (*M. primaevus*: rounded in apical 2/3 and straight in basal 1/3); and 5) elytra widest at middle and 1.65 times as long as wide at base (*M. primaevus*: parallel-sided in basal 2/3 and more than twice as long as wide at base).

Description. Adult, sex unknown. Body elongate ovate, moderately convex dorsally on both pronotum and elytra (Figs. 1, 2). LB 3.37 mm; WB 1.47 mm (in pronotum); LB/WB 2.29.

Integument blackish. Dorsal and ventral surfaces moderately shiny. Head sparsely clothed with very fine setae on vertex, but bare on frons; pronotum clothed with short semirecumbent setae; elytra clothed with short erect setae (Fig. 1C); underside sparsely clothed with recumbent fine setae.

Head with front moderately produced between eyes in dorsal view, outline faintly bilobed. Eyes more or less concealed posteriorly under pronotum in dorsal view, inner margins weakly convergent dorsad. Vertex sparsely variolate-punctate; frons rather flat, faintly concave (Fig. 3B), surface sparsely punctate; frontovertex 1.72 times as wide as long; clypeal region not examined. Antennae (Fig. 3A) rather short, total length 1.10 mm, serrate from antennomere 4; antennomere 1 stout claviform; 2 ovate; 3 subrectangular; 4 subtriangular; 5–10 triangular; 11 elongate ovate, weakly emarginate apicolaterally; relative length of antennomeres as follows: 1.6 [1]; 1.0 [2]; 1.0 [3]; 1.1 [4]; 1.0 [5]; 1.0 [6]; 1.2 [7]; 1.1 [8]; 1.1 [9]; 0.9 [10]; 1.3 [11]. Maxillary palpomere 4 elongate ovate, 2.0 times longer than wide, 2.3 times longer than palpomere 3 (based on left side in ventral view).

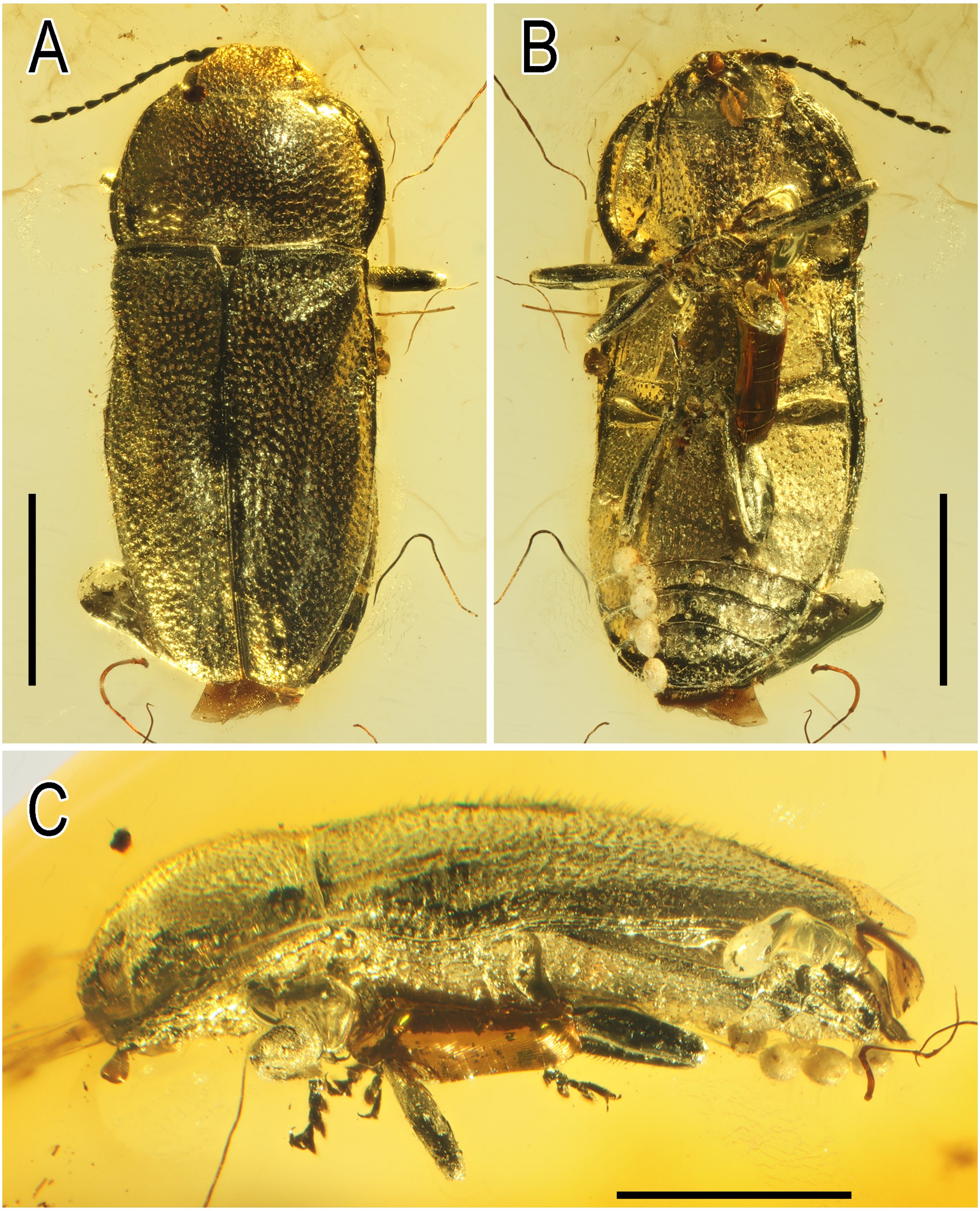

Figure 1. Habitus of *Mastogenius aquilonaris* sp. nov., holotype. **A,** Dorsal view; **B,** ventral view; **C,** lateral view. Scale bars = 1.0 mm.

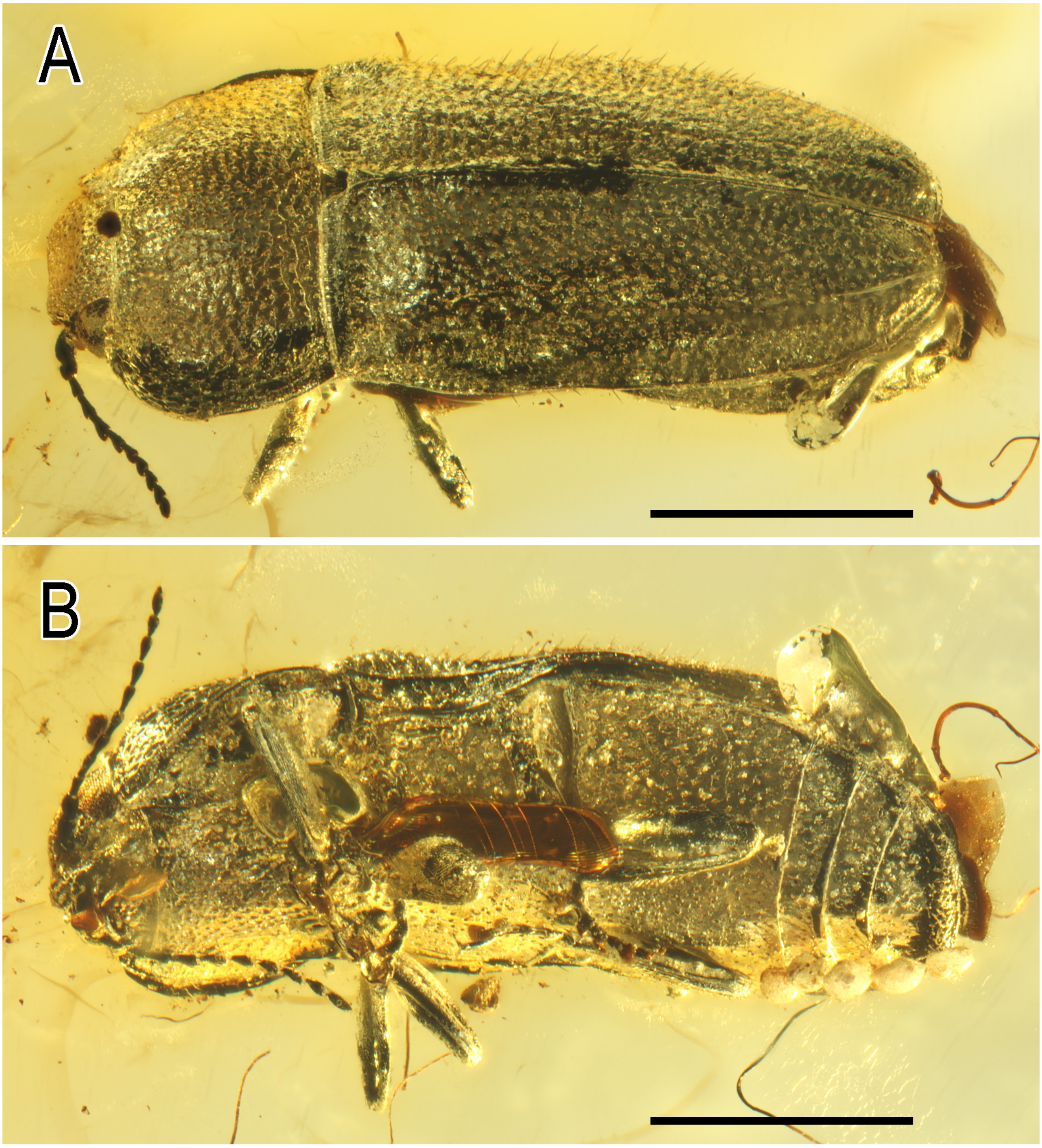

Figure 2. Habitus of *Mastogenius aquilonaris* sp. nov., holotype. **A**, Dorsolateral view; **B**, ventrolateral view. Scale bars = 1.0 mm.

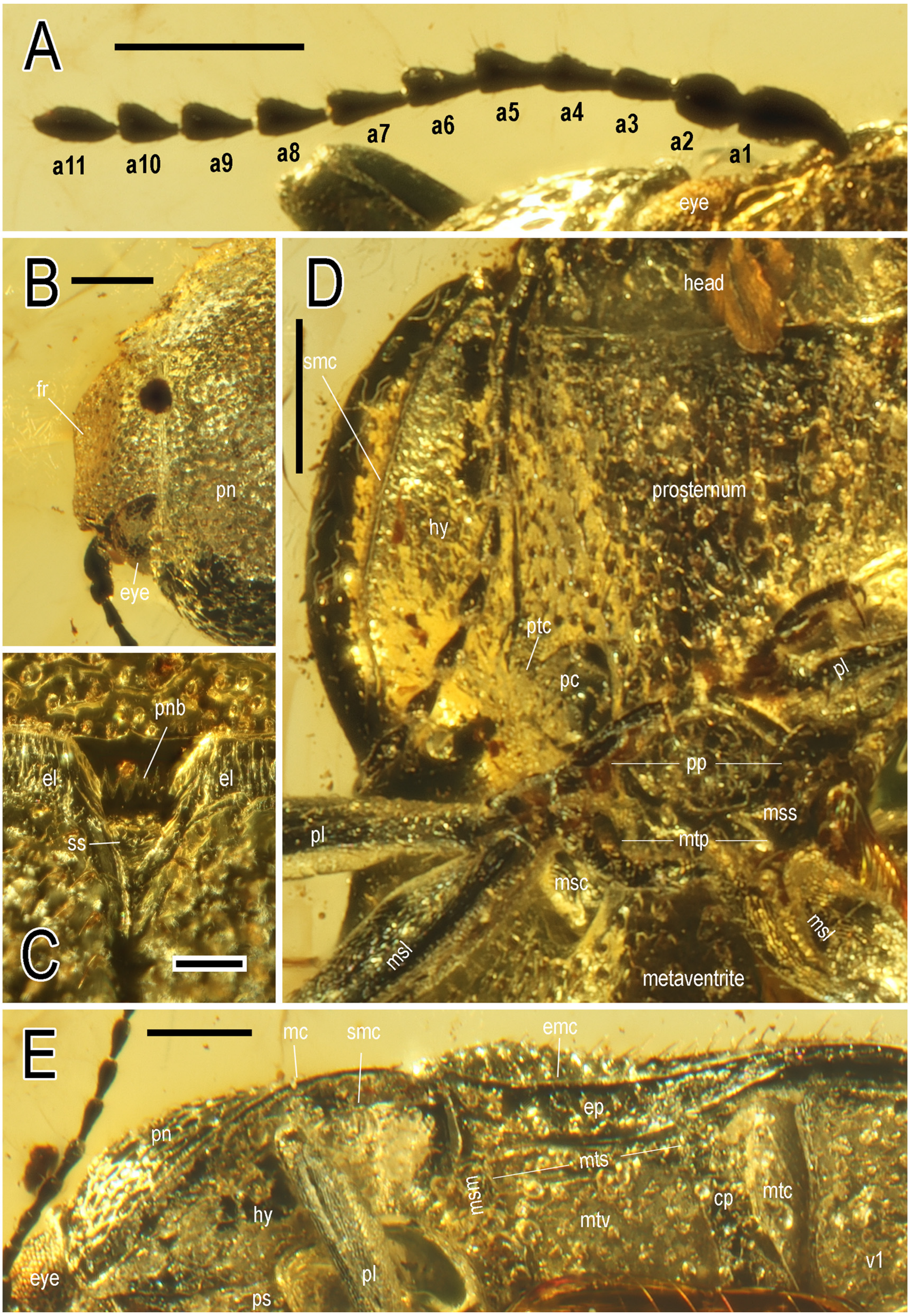

Figure 3. Details of *Mastogenius aquilonaris* sp. nov., holotype. **A,** Antenna; **B,** head, laterodorsal view; **C,** scutellar shield; **D,** ventral thoracic region; **E,** lateroventral thoracic region. Abbreviations: cp, coxal plate; el, elytron; emc, elytral marginal carina; ep, epipreuron; fr, frons; hy, hypomeron; mc, marginal carina; msl, mesoleg; msm, mesepimeron; mss, mesanepisternum; mtc, metacoxa; mtp, metaventral process; mts, metanepisternum; pc, procoxa; pn, pronotum; pnb, pronotal base; pp, prosternal process; ptc, protrochantin; smc, submarginal carina; ss, scutellar shield; v, abdominal ventrite. Scale bars: 0.25 mm (A, B, D, E); 0.10 mm (C).

Pronotum widest at basal 1/3, WP/LP 1.88 (1.47 mm/0.78 mm), BMP/AMP 1.72 (1.31 mm/0.76 mm), distinctly wider than elytral base and subequal to elytral widest point; sides arcuately widened from base to apical 2/3, continuously arcuately narrowed apicad, marginal carinae (supralateral or prelateral carinae) extending from base to about apical 1/4 (observed on left side only; Fig. 3E); submarginal carinae (lateral carinae) entire, not visible in dorsal view (Fig. 3D, E); apical margin strongly arcuately emarginate; basal margin subtruncate; apicolateral angles broadly acute in dorsal view; basolateral angles obtuse in dorsal view; disc evenly convex; surface densely punctate medially with setiferous punctures, rugosopunctate laterally and basally. Scutellar shield (Fig. 3C) very small, triangular, probably deformed condition: anterior side declivous anteriorly and concealed under true pronotal base, which is crenulate.

Elytra widest at middle, LE/WE 1.53 (2.24 mm/1.46 mm), LE/LP 2.87 (2.24 mm/0.78 mm), 1.65 times longer than wide at base (basal width: 1.36 mm); humeral calli moderately developed; sides weakly widened from base to middle in rather straight lines, arcuately narrowed to weakly rounded nonserrate apices; sutural margin distinctly elevated in apical 1/4; disc transversely convex, weakly depressed alongside basal margin; surface evenly densely punctate with setiferous punctures; epiplerua distinctly narrow in elytral apical half.

Underside. Prosternum with apical margin subtrunctate; prosternal process wide, gently narrowed from base to broadly rounded apex; disc weakly convex medially and moderately declivous laterad, without longitudinal carinae on each side of midline, without antennal grooves; surface densely punctate with setiferous punctures becoming larger and reticulate-punctate posteriorly. Hypomera with surface sparsely punctate with setiferous punctures, interstices inconspicuously reticulate. Mesoventrite distinctly divided by prosternal process. Metaventrite with posterior margin notched medially; discrimen (median longitudinal suture) distinct from middle to posterior margin; katepisternal suture (transverse suture) indistinct; surface variolate-punctate with setiferous punctures becoming sparser medially. Legs not particularly long, slender; metacoxae completely separated each other; metacoxal plates with posterior margin weakly arcuately concave laterad, surface moderately punctate with setiferous punctures; femora fusiform, distinctly broader than tibia; metatibiae laterally with a fringe of spine-like setae in about apical half; tarsi slightly longer than 2/3 length of tibia, tarsomere 1 slightly longer than either 2 or 3, tarsomeres 2 and 3 subequal, tarsomere 4 much shorter than other tarsomeres, tarsomere 5 subequal to 2+3; tarsomeres 1–4 with tarsal pads, on tarsomere 1 small and invisible dorsally, on tarsomere 2 slightly visible dorsally, on tarsomeres 3 and 4 distinctly visible dorsally and larger on 4 than on 3; claws weakly roundly broadened basally, lacking inner tooth. Abdominal ventrites with distinct sternal carinae delimiting laterosternites; boundary suture between ventrites 1 and 2 obliterated; ventrite 5 with disc weakly swelling along broadly subtruncate apex; surface variolate-punctate, becoming denser in ventrite 1, with larger and denser punctures on the swelling apical part of ventrite 5.

Terminalia partly visible (Fig. 1B), probably caudal parts of proctiger (tergite 9+10) and sternite 8; sex undetermined; genitalia not visible.

Remarks. *Mastogenius aquilonaris* is assigned to the buprestoid family Buprestidae based on the narrow metanepisternum, the entire (non-bilobed) tarsomere 4, and the oblitelated boundary suture of connate abdominal vetrites 1 and 2 (Nelson & Bellamy 1991, 2002; Bellamy & Nelson 2002). This new fossil species is, furthermore, assigned to the tribe Haplostethini, which is tentatively belonged to the buprestid subfamily Polycestinae in the current subfamilial classification (Bellamy 2003), based on the presence of the submarginal carina on pronotum, the almost truncate base of pronotum, and the sternal cavity (receiving for prosternal process) consisting of both mesoventrite and metaventrite (Cobos 1980, 1981b; Bellamy & Nelson 2002). Within Haplostethini, *M. aquilonaris* is placed in the genus *Mastogenius* based on the presence of marginal and submarginal carinae on pronotum, the absence of antennal grooves on either pronotum or hypomera and the absence of a longitudinal carina on each side of prosternal midline (see also Diagnosis and Remarks in *Mastogenius*).

Discussion

This study verifies the occurrence of the genus *Mastogenius* in the northern part of western Eurasia in the Eocene based on an exquisitely preserved fossil specimen in Baltic amber. According to Obenberger (1957), *M. primaevus*, the only previously known fossil *Mastogenius* species in Baltic amber, was examined only from the dorsal side of body due to its orientation in the piece of amber and state of preservation. In the generic definition of *Mastogenius*, several character states on the ventrum are very significant to distinguish it from other Haplostethini genera (see Remarks in *Mastogenius*; Obenberger 1957; Cobos 1981a; Manley 1986b; Bellamy 1991). As a result, the generic assignment by Obenberger (1957) for *M. primaevus* should be, as he himself stated, considered as tentative. Although the discovery of *M. aquilonaris* unequivocally demonstrates the presence of this genus in Baltic amber, future reevaluation of the holotype of *M. primaevus* using the latest visualization technologies, such as micro-CT scanning (X-ray micro-computed tomography), would be desirable to resolve this question.

Our discovery of a fossil definitively assigned to the genus *Mastogenius* from Baltic amber is highly intriguing for considering the biogeography of this genus. As previously noted, this genus has undergone significant speciation in South America and is not currently found in Europe. To be more precise, the closest location to the current Baltic region within the extant distributional range of this genus in Eurasia is China (Yunnan) or Thailand (i.e., *Mastogenius taoi* Tôyama, 1983). In the Old World, the northernmost distribution of *Mastogenius* is Honshû, Japan (i.e., *Mastogenius insperatus* Kurosawa, 1972; Kamezawa & Matoba 2020), while in the New World it reaches Ontario, Canada (i.e., *Mastogenius crenulatus* Knull, 1934). Numerous beetles in Baltic amber exhibit such interesting distribution patterns differing from those of their related extant taxa, with examples known in the dozens of coleopteran families (summarized in Alekseev 2017). For instance, the lymexylid subfamily Atractocerinae is broadly extinct in present-day Europe, but fossils are found from both Baltic amber and contemporaneous Ukrainian Rovno amber (Yamamoto 2019; Yamamoto *et al*. 2022; Kirejtshuk 2025). Another notable example is the cupedid genus *Cupes* Fabricius, 1801, which is relatively prevalent in Baltic amber but is now known by only one species in eastern North America (Kirejtshuk 2005; Yamamoto 2024). Interestingly, no species of Cupedidae have been found in the modern European region; thus, the current global distribution of the family indicates that it is relictual based on direct fossil evidence from Baltic and Rovno ambers (Kirejtshuk 2005, 2020; Kirejtshuk *et al*. 2016; Bukejs *et al*. 2021; Yamamoto 2024). Considering the above, it is highly likely that the current distribution of *Mastogenius* differs significantly from its past range, though this is not particularly surprising. While the fossil occurrence of this genus is currently limited to Baltic amber, discoveries from other fossil sources such as Miocene Dominican amber or Mexican amber could reveal a more detailed picture of its past distribution.

It is difficult to determine details of host associations, namely, the plants that served as hosts for fossil species of *Mastogenius*, but this is true for extinct insects in general. Even though those of the extant species are not well understood, previous studies have reported larval host and associated plants of adult for some New World or Palearctic species (Lugger 1884; Schaeffer, 1905; Blatchley 1919; Knull 1922, 1974; Chamberlin 1926; Kissinger 1955; Kirk 1969; Hespenheide 1974; Manley 1986a; Nelson 1987; Makihara 1989; Walters & Bellamy, 1990; Westcott 1990, 2005; Moore 1994, 1998; Nelson *et al*. 1996, 2008; Bellamy 2002; MacRae 2003, 2006; MacRae & Nelson 2003; Paiero *et al*. 2012; MacRae & Basham 2013, 2024; Ferro & Gimmel 2014; Moore & Vidal 2015; Woodley 2024). According to these records, this genus is associated with twelve plant families, viz.: Betulaceae, Combretaceae, Cornaceae, Ebenaceae, Fabaceae, Fagaceae, Juglandaceae, Lauraceae, Nothofagaceae, Proteaceae, Salicaceae, and Sapindaceae (Appendix A). The host range at the species level appers to be various (6 polyphagous [multiple plant families], 2 oligophagous [multiple plant genera within a single family], and 7 monophagous [a single plant genus] species). Among the recorded hosts are four plant genera (*Quercus*, *Cornus*, *Ostrya*, and *Salix*) that are also distributed in the northern part of western Eurasia, although no extant *Mastogenius* species are distributed there.

The current distributional range of *Mastogenius* may be more dependent upon climate than host plant distributions. Extant *Mastogenius* species are mostly distributed in the tropical and warm-temperate zones, suggesting that the cool-temperate and subarctic zones (and arctic zone) including the current Baltic region is not habitable for this genus. Fossil discoveries of *Mastogenius* from Baltic amber suggest that habitat area of these fossil species was in warmer climates than current. Recent studies have repeatedly uncovered some thermophilic beetle genera within Baltic amber that are typically found in warm and humid regions (e.g., Alekseev & Alekseev 2016; Brunke *et al*. 2017, 2019; Bogri *et al*. 2018; Shavrin & Yamamoto 2019; Alekseev *et al*. 2021). Our example, while unusual among Baltic amber beetles, is not particularly exceptional. The presence of species from various coleopteran groups with different modern temperature preferences in the Baltic amber cannot only be explained by changes in climate and environmental conditions but also historical (paleobiogeographical) factors (Alekseev 2016). Either way, our discovery of the definitive *Mastogenius* fossil provides further insight into the northern European forest environment that produced Baltic amber.

Data Availability

The original images and higher-resolution figure plates are available in the Zenodo (https://doi.org/10.5281/zenodo.19647720) and figshare (https://doi.org/10.6084/m9.figshare.32044449) repositories.

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Appendix A. Available host information of extant *Mastogenius*

1. *Mastogenius aliciae* Westcott, 2005. LARVAL: *Mimosa arenosa* (Fabaceae) branches girdled by a cerambycid species, *Taricanus zaragozai* (Westcott 2005).

2. *Mastogenius arizonicus* Bellamy, 2002. LARVAL: Unknown. ADULT (collecting): *Quercus hypoleucoides* (Fagaceae) (Bellamy 2002; Nelson *et al*. 2008).

3. *Mastogenius castlei* Champlain & Knull, 1922. LARVAL: *Tamarindus indica* (Fabaceae) (Westcott 1990); *Laguncularia racemosa* (Combretaceae) (MacRae & Nelson 2003). ADULT (collecting): *Conocarpus erectus* (Combretaceae) (Westcott 1990).

4. *Mastogenius crenulatus* Knull, 1934. LARVAL: *Cercis canadensis* (Fabaceae) (Hespenheide 1974); *Carya illinoinensis* (Juglandaceae), *Diospyros texana* (Ebenaceae) (Nelson *et al*. 1996); *Quercus alba*, *Q. phellos* (MacRae 2006); *Juglans nigra* (Juglandaceae) (MacRae & Basham 2013); *Quercus falcata* (Ferro & Gimmel 2014); *Cornus florida* (Cornaceae) (MacRae & Basham 2024). ADULT (collecting): *Acer saccharum* (Sapindaceae), *Salix* sp. (Salicaceae) (Knull 1974); *Quercus* sp. (Kirk 1969, Knull 1974); *Quercus falcata* (Nelson 1987).

5. *Mastogenius cyanelytra* Westcott, 2005. LARVAL: Unknown. ADULT (collecting): *Quercus rugosa* (Westcott 2005).

6. *Mastogenius guayasensis* Manley, 1986. LARVAL: *Leucaena trichodes* (Fabaceae), *Prosopis* sp. (Fabaceae) (Manley 1986a).

7. *Mastogenius guayllabambensis* MacRae, 2003. LARVAL: Unknown. ADULT (collecting): *Acacia* sp. (Fabaceae), *Prosopis* sp. (MacRae 2003).

8. *Mastogenius insperatus* Kurosawa, 1972. LARVAL: *Cinnamomum doederleinii* (Lauraceae) (Makihara 1989).

9. *Mastogenius laevifrons* Kerremans, 1906. LARVAL: Unknown. ADULT (collecting): *Adesmia microphylla* (Fabaceae), *Senna cumingii* (Fabaceae) (Moore 1994).

10. *Mastogenius lizaleriae* Moore, 1998. LARVAL: Unknown. ADULT (collecting): *Nothofagus obliqua* (Nothofagaceae), *Lomatia* sp. (Proteaceae) (Moore 1998).

11. *Mastogenius parallelus* Solier, 1850. LARVAL: *Senna cumingi* (Moore & Vidal 2015). ADULT (collecting): *Adesmia microphylla*, *Lithraea caustica* (Anacardiaceae) (Moore & Vidal 2015).

12. *Mastogenius puncticollis* Schaeffer, 1919. LARVAL: Unknown. ADULT (collecting): *Quercus* sp. (Walters & Bellamy 1990); *Quercus hypoleucoides* (Woodley 2024).

13. *Mastogenius robustus* Schaeffer, 1905. LARVAL: Unknown. ADULT (collecting): *Quercus* sp. (Schaeffer 1905); *Quercus hypoleucoides* (Nelson 1965); *Quercus oblongifolia* (MacRae & Basham 2024).

14. *Mastogenius subcyaneus* (LeConte, 1860). LARVAL: *Ostrya virginiana* (Betulaceae) (Lugger 1884; Chamberlin 1926); *Quercus* sp. (Knull 1922); *Quercus digitata* (Chamberlin 1926); *Carya illinoinensis* (Kirk 1969); *Quercus* prob. *palustris* (Hespenheide 1974); *Cercis canadensis* (Tôyama 1983). ADULT (collecting): “sweeping ferns” (Blatchley 1919); *Quercus* sp., *Salix* sp. (Chamberlin 1926); *Cornus* sp. (Kissinger 1955).

15. *Mastogenius texanus* Bellamy, 2002. LARVAL: *Quercus vaseyana* (Bellamy 2002). ADULT (collecting): *Quercus grisea* (Bellamy 2002; Nelson *et al*. 2008).