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Two new *Globicornis* Latreille species from eastern Mediterranean (Coleoptera: Dermestidae: Megatominae)

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Two new *Globicornis* Latreille species from eastern Mediterranean (Coleoptera: Dermestidae: Megatominae)

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Abstract. Two **new species**, *Globicornis* (*Globicornis*) *busei* Holloway and Herrmann and *Globicornis* (*Globicornis*) *lienemanni* Holloway and Herrmann (Coleoptera: Dermestidae: Megatominae) from eastern Mediterranean are described and compared with *G. picta* (Küster, 1851), the most likely confounding species because of geographical overlap and external similarity. Images of the habitus, ventrites, antenna, aedeagus, and sternite IX are presented. Ten *Globicornis* (*Globicornis*) Latreille, 1829 species are now known from the eastern Mediterranean.

Key words. Taxonomy, dissection, genitalia, *busei*, *lienemanni*, *picta*.

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Introduction

The family Dermestidae Latreille, 1804 contains 1930 species (Háva 2024). The number of species has grown by about 1000 since Mroczkowski (1968), an increase of about 55% in the space of just 60 years, with most species discovered since the year 2000 (Háva 2024). The largest subfamily within the Dermestidae is Megatominae Leach, 1815, and within Megatominae sits the genus *Globicornis* Latreille, 1829. *Globicornis* is split into four subgenera: *Elania* Mulsant and Rey, 1868 with two species, *Globicornis* with 20 species, *Hadrotoma* Erichson, 1846 with six species, and *Pseudomesalia* Ganglbauer, 1900 with five species, a total of 33 species within the genus *Globicornis*. *Globicornis* is entirely Palaearctic with species distributed from western Europe and into central Asia. Only one species, *G. yushuensis* Háva, 2016 occurs as far east as China (Háva 2024).

The earliest species described was *G. nigripes* (Fabricius, 1792) with a further two species described prior to 1850. An additional 14 species were added between 1851 and 1900, and another six species were added during the 20th century. Only 10 new *Globicornis* species have been described during the 21st century, well below the rate of species description across the Dermestidae as a whole, suggesting perhaps that *Globicornis* hasn't received as much attention as some other genera within the family. The most recently described species is *G. peckhamae* Holloway and Cañada Luna, 2023. Holloway and Cañada Luna (2023) described *G. peckhamae* from Mallorca, splitting the new species from *G. bifasciata* (Perris, 1866), and suggested a reason for the lack of recent species discovery. *Globicornis bifasciata* and *G. peckhamae* are very similar externally, in particular with respect to the possession of a large, characteristic antennal club, reinforcing the belief that the species was well-known and providing little incentive to look further than this. Indeed, Holloway and Cañada Luna (2023) only discovered *G. peckhamae* whilst carrying out work to better describe *G. bifasciata*; the discovery of a second species was unexpected. This raises the possibility that the ranges of other named *Globicornis* species encompass several look-alike species. This situation has been found in other Megatominae, including *Anthrenus pimpinellae* (Fabricius, 1775) from which similar western Palaearctic species have been split (Holloway 2019, 2020, 2024a, 2024b), and the *A. maculifer* group of species from Asia (Holloway 2025). Studies like these facilitate a better understanding of true distribution (Holloway et al. 2021, 2023, 2025; Holloway and Herrmann 2024).

Globicornis picta (Küster, 1851) is another species from the subgenus *Globicornis* to be described in the mid-19th century (along with *G. variegata* (Küster, 1851), although Küster initially assigned both species to *Trogoderma* (Dejean, 1821)). *Globicornis picta* is believed to have one of the widest ranges within the genus, ranging from Italy in the west, east into Turkey and south to Egypt (Háva 2024), making it a good species for further investigative study. The purpose of the current study was to provide a more extensive description of *G. picta* and to consider whether more than one species exists within the reported *G. picta* distribution (Háva 2024). In addition to *G. picta*, two new species were found and are described herein: *G. busei* and *G. lienemanni*.

Materials and Methods

Thirty-three specimens from Andreas Herrmann's private collection (AHEC) were examined although dissection and species recognition was based on the ten male specimens.

All specimens were macerated in a solution of 2% acetic acid for five days to allow removal from staging prior to dissection. Dissection was carried out under a Brunel BMSL zoom stereo LED microscope and involved detaching the abdomen from the rest of the insect using two entomological pins. The soft tergites were then peeled away from the harder ventrites to expose the genitalia. The aedeagus was detached from the ring sclerite, and then sternite IX was detached from the ring sclerite and the aedeagus. Prior to imaging, aedeagi were cleaned in 5% KOH for 12 hours. Images of habiti, both upper and lower sides, were captured at ×20 magnification using a Canon EOS 2000D camera mounted on the BMSL microscope. Images of aedeagi and sternite IX were captured at ×200 magnification for measurement using a Canon EOS 1300D camera mounted on a Brunel monocular SP28 microscope. After dissection, all body parts were mounted on card. The antennae were teased out and images were taken at ×200 magnification through the SP28 microscope. All images were fed through Helicon Focus Pro version 8.2.2 focus-stacking software. Habitus measurements were made using a calibrated eyepiece. All other measurements were made using DsCap.Ink software version 3.90. Measurements taken:

- Body length (BL): distance from anterior margin of pronotum to the apex of the elytra.
- Paramere length (PL): distance from the anterior end of the parameres to the apex of the parameres
- Median lobe length (ML): distance from posterior tip to tip of one anterior stirrup.
- Sternite IX length (SL): distance from the tip of one anterior horn to the tip of the posterior lobe

The data for the distribution maps (Shorthouse 2010) were derived from the data labels on the studied specimens and Háva (2024). Scale bars were added using ImageJ 1.53M (Schneider et al. 2014).

Results

Taxonomy

Dermestidae Latreille, 1803
Megatominae Dalla Torre, 1911
Megatomini Leach, 1815
Megatomina Leach, 1815
Globicornis Latreille in Cuvier, 1829

Globicornis (*Globicornis*) *busei* Holloway and Herrmann, new species

(Fig. 1–2)

Type specimens. Holotype. Male. Israel, Upper Galilee, Biriya Forest/Safed, 32.97N, 35.47E. Window trap on *Pinus brutia*. 14.v.2007, J. Buse leg. AHEC.

Paratypes. None.

Other material examined. Male, Cyprus, Nicosia district, Cedar Valley, 35.03, 32.66, 1200 m. *Quercus alnifolia* 7.v.2014, David Frank leg. Male, Southern Turkey, Umg. Kemer, 16.v.1993, A. Weigel leg. Male, Cyprus, Panagia/Paphos, 34.919, 32.631. 14.iv.2010, W. Ziegler leg. AHEC.

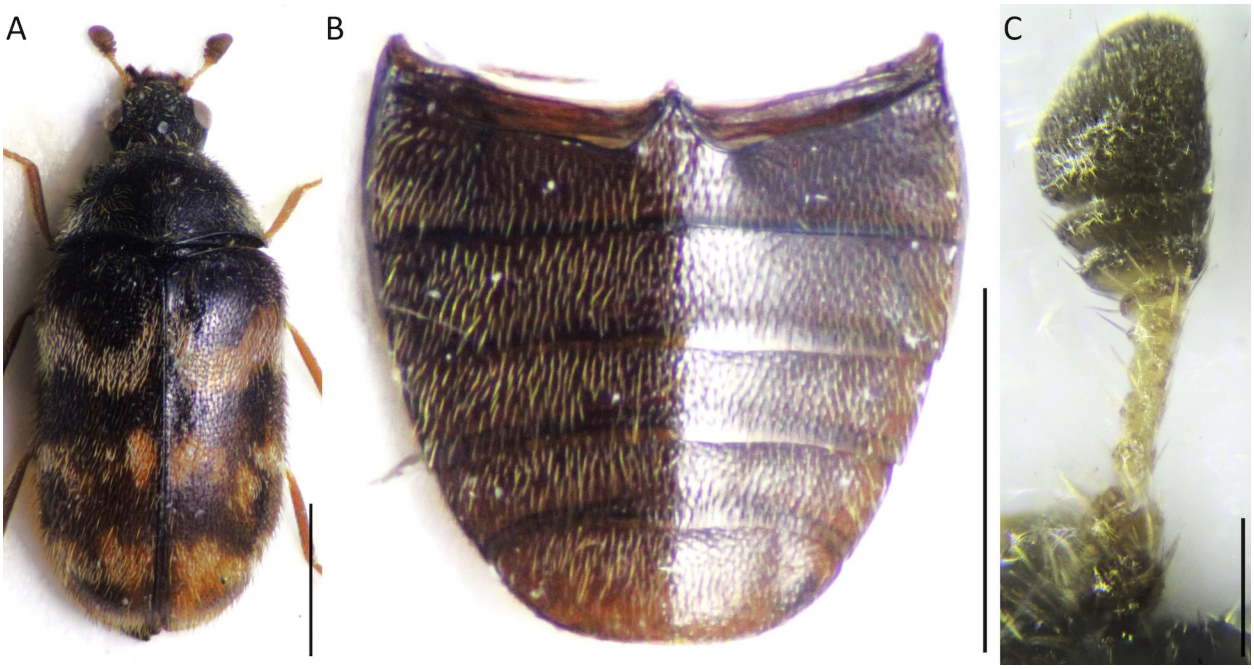

Figure 1. *Globicornis busei* **sp. nov.**, holotype. **A)** Habitus (scale bar = 1 mm). **B)** Ventrites (scale bar = 1 mm). **C)** Antenna (scale bar = 100 μm).

Description, external characteristics. Holotype *Globicornis* (*Globicornis*) *busei* (Fig. 1A), BL = 3.2 mm, BW = 1.65 mm). Single brown ocellus just above level of top of eyes. Eyes oblong, margins complete, bulbous. Integument of head and pronotum dark brown, sculptured, pustulate. Face from ocellus, laterally to eyes and down to labrum with yellowish hairs. Lateral pronotal margins evenly curved to anterior angles, anterior margin slightly sinuate, posterior margin sinuate with shallow projection above scutellar shield. Dark brown scutellar shield equilateral triangle. Pronotum with yellow hairs, slightly paler, slightly flattened (scale like), and denser at pronotal hind angles, yellower, not flattened hairs around anterior angles and across anterior margin, and above scutellar shield, sparser yellow hairs on disk of pronotum.

Elytral integument dark brown at base, becoming paler towards apices. Three reddish fasciae across elytra: pre-medial, medial, and post-medial. Pre-medial fascia from lateral margin complete, sweeping downwards and then up towards but not reaching scutellum. Medial fascia consists of a series of spots. Post-medial fascia consists of two larger spots on each elytron. Medial and post-medial fasciae linked by reddish integument running along elytral margin. Reddish margin continues to elytral apices from post-medial fascia to form large apical spots, Apical spots and post-medial fascia also connected by reddish integument along elytral suture. Reddish integument covered in scale-like whitish hairs, brown integument covered in brown hairs. Ventrites (Fig. 1B) shining, mid-brown, covered in evenly spaced, short, yellowish hairs.

Antenna with 10 antennomeres (Fig. 1C) with mid-brown, globular antennomeres 1 and 2. Antennomeres 3–7 yellowish, antennomeres 3 and 4 very elongate, antennomere 5 slightly elongate, antennomere 6 transverse, antennomere 7 disc-shaped with brown edging to disc, antennomeres 8–10 brown, antennomeres 8 and 9 disc-shaped, antennomere 10 triangular with 90° angle between posterior and inner lateral margin, connected by an evenly curved anterior margin. Femora brown, tibiae and tarsi red.

Description, internal characteristics. The overall shape of the aedeagus (Fig. 2A) is broad oval, especially evident in ventral aspect. Parameres (PL = 466 μm) connected at anterior base by two narrow rods. From anterior, parameres diverge and ⅓ along broaden and continue to curve inwards at posterior apices. Inner surfaces of parameres with long, straight, posteriad angled hairs that continue posterior becoming progressively shorter to paramere

Figure 2. *Globicornis busei* **sp. nov.**, holotype. **A)** Aedeagus. **B)** Sternite IX. Scale bar = 100 µm in both cases.

tips. Anterior end of parameres pale brown, becoming progressively paler to whitish at rounded posterior tips. Paramere tips point distinctly towards posterior without curving over the top of the median lobe. Medium lobe (ML = 351 µm) with steadily converging, pale brown, rod-like margins, inner margins of rods connected by pale, thin membrane. Marginal rods widely spaced at base, curve dorsally, joining at posterior apex forming a hook and falling just short of the paramere tips. Median lobe attached to parameres about ⅓ along from anterior and terminates in two straight, short stirrups. Sternite IX (Fig. 2B; SL = 512 µm) with single anterior attachment point, that extends posteriad as two narrow marginal rods that diverge forming concave outer margins for first ½ of sternite. From widest point and towards posterior, concave lateral margins become membranous and form rounded, slightly pointed posterior margin. Membranous margin carrying small number of stout, dark setae with about 10 such setae away from margin on sternite disk. Sternite membrane very pale brown in anterior half, paler, almost white in posterior half.

Etymology. The species is named after the collector of the holotype, the coleopterist Dr. Jörn Buse (Germany).

Globicornis (*Globicornis*) *lienemanni* Holloway and Herrmann, new species

(Fig. 3–4)

Type specimens. Holotype. Male. Cyprus, Kyrenia, Magar, 600 m, 35.292, 33.521. *Pastinaca savita*, 2.vi.1992, K. Lienemann, leg. AHEC.

Paratype. Female, same data as holotype, AHEC.

Other material examined. Male, Turkey, Mersin, 36.798, 34.63. 6.v.2004, V. Brachat H. Meybohm, leg. AHEC.

Description, external characteristics. Holotype *Globicornis* (*Globicornis*) *lienemanni* (Fig. 3A), BL = 2.4 mm, BW = 1.25 mm). Single brown ocellus above level of top of eyes. Eyes oblong, margins complete, bulbous. Integument of head and pronotum dark brown, sculptured, pustulate. A few weak yellowish hairs of face. Lateral pronotal margins evenly curved to anterior angles, anterior margin slightly sinuate, posterior margin sinuate with shallow projection above scutellar shield. Dark brown scutellar shield equilateral triangle. Pronotum with yellow hairs, slightly paler, slightly flattened (scale like) towards pronotal hind angles, yellower, (not flattened) hairs around anterior angles and across posterior margin above scutellar shield. Very few yellow hairs on anterior part of disk of pronotum, apart from a few hairs on anterior pronotal corners.

Elytral integument dark brown at base, becoming paler towards apices. Three reddish fasciae across elytra: pre-medial, medial, and post-medial. No fascia reaching lateral margin. Pre-medial fascia complete, sweeping downwards from sub-margin, and then up towards but not reaching scutellum. Medial fascia like pre-medial fascia. Post-medial fascia consists of tightly connected spots. Fasciae not connected with strips of clear reddish integument along the lateral margin or elytral suture. Ventrites (Fig. 3B) shining, mid-brown, covered in evenly spaced, yellowish hairs.

Antenna with 10 antennomeres (Fig. 3C) with mid-brown, globular antennomeres 1 and 2. Antennomeres 3–7 red, antennomeres 3 and 4 elongate, antennomere 5 slightly elongate, antennomeres 6 and 7 transverse, antennomeres 8–10 brown, antennomeres 8 and 9 disc-shaped, antennomere 10 rounded (Antennomere 10 folded inwards which likely affects its appearance). Femora brown, tibiae and tarsi red.

Description, internal characteristics. Overall shape of aedeagus (Fig. 4A) elongated oblong. Parameres (PL = 415 µm) connected at anterior base by two narrow rods. From anterior, parameres diverge and ⅓ along broaden,

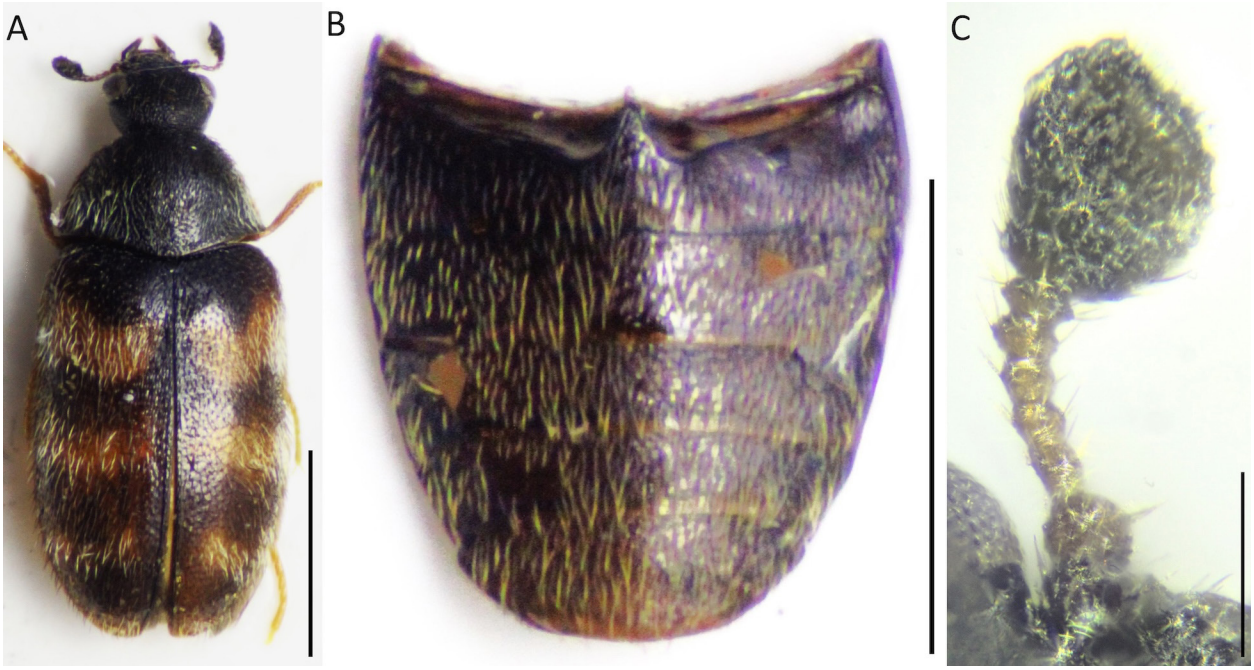

Figure 3. *Globicornis lienemanni* **sp. nov.**, holotype. **A)** Habitus (scale bar = 1 mm). **B)** Ventrites (scale bar = 1 mm). **C)** Antenna (scale bar = 100 µm).

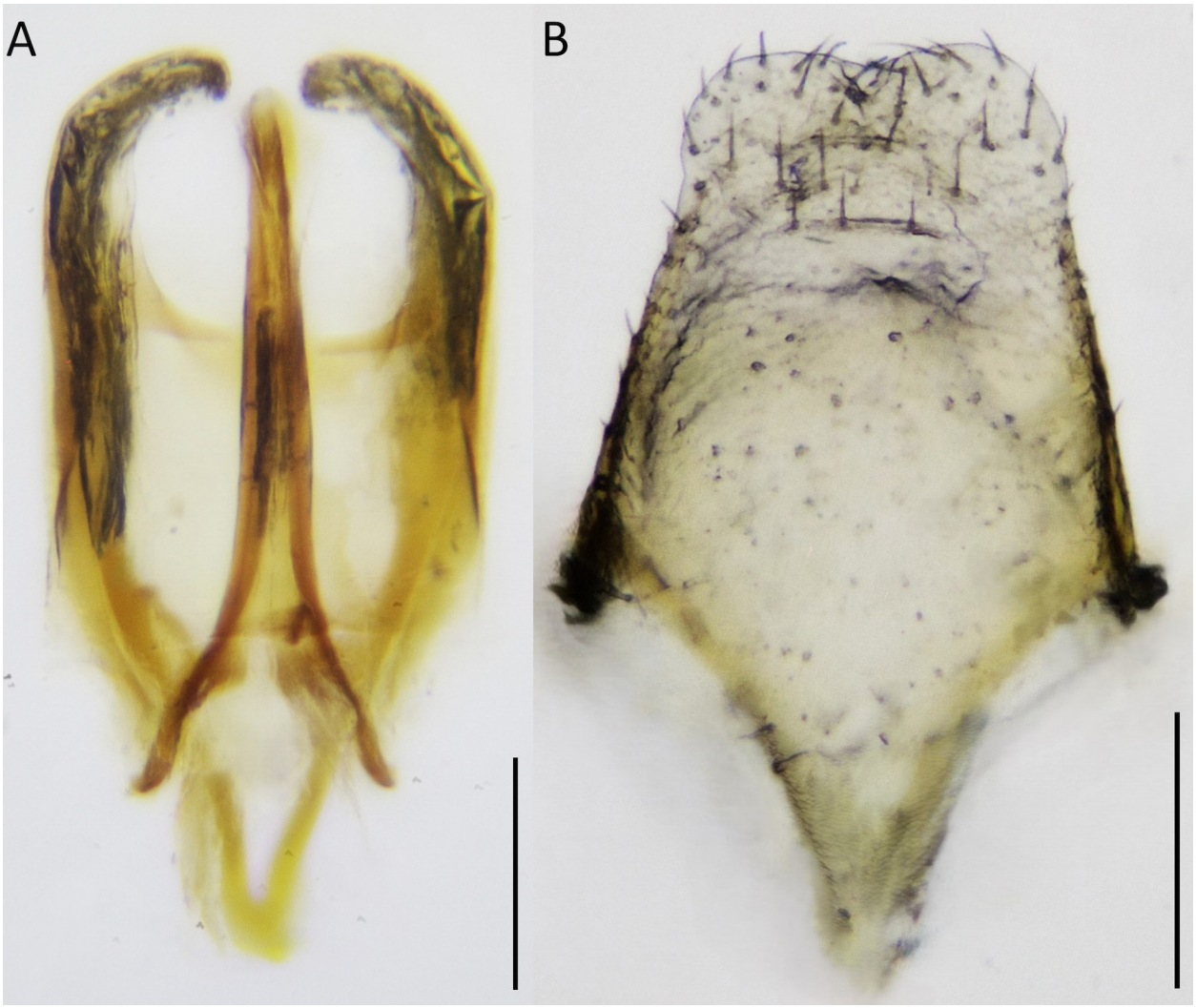

Figure 4. *Globicornis lienemanni* **sp. nov.**, holotype. **A)** Aedeagus. **B)** Sternite IX. Scale bar = 100 μm in both cases.

run parallel to each other, and curve inwards at posterior apices. Straight setae along inner margin of parameres angled posteriad, long setae on paramere tips especially on outer surface. Paramere tips narrow and curve inwards over median lobe. Medium lobe (ML = 317 μm) with brown, rod-like margins that run parallel for ⅔ length before converging, curving dorsally and ending in hook at posterior end. Median lobe attached to parameres less than ⅓ along from anterior and terminates in two straight, short stirrups. Sternite IX (Fig. 4B; SL = 391 μm) with short, single anterior attachment point. Lateral margins diverge from attachment point for less than ½ of sternite. From widest point, lateral margins are straight and converge slightly to slightly extended lobe with flat (or notched) posterior margin. Short, black setae mostly restricted to posterior lobe extension, mostly at margins with about 10 setae scattered across disc of posterior lobe. Sternite membrane very pale brown, slightly paler towards posterior margin.

Etymology. The species is named after the collector of the holotype, Dr. Klaus Lienemann (Germany).

Differential diagnosis. Both *G. busei* and *G. lienemanni* occur within the presumed range of *G. picta* (Háva 2024) and were mixed in with a sample of specimens all tentatively identified as *G. picta*. Externally, from the sample of specimens examined there was little to differentiate the three species from each other, although *G. picta* tended to have fewer pale setae on the pronotum than *G. busei* and *G. lienemanni* (Fig. 5). Of course, there

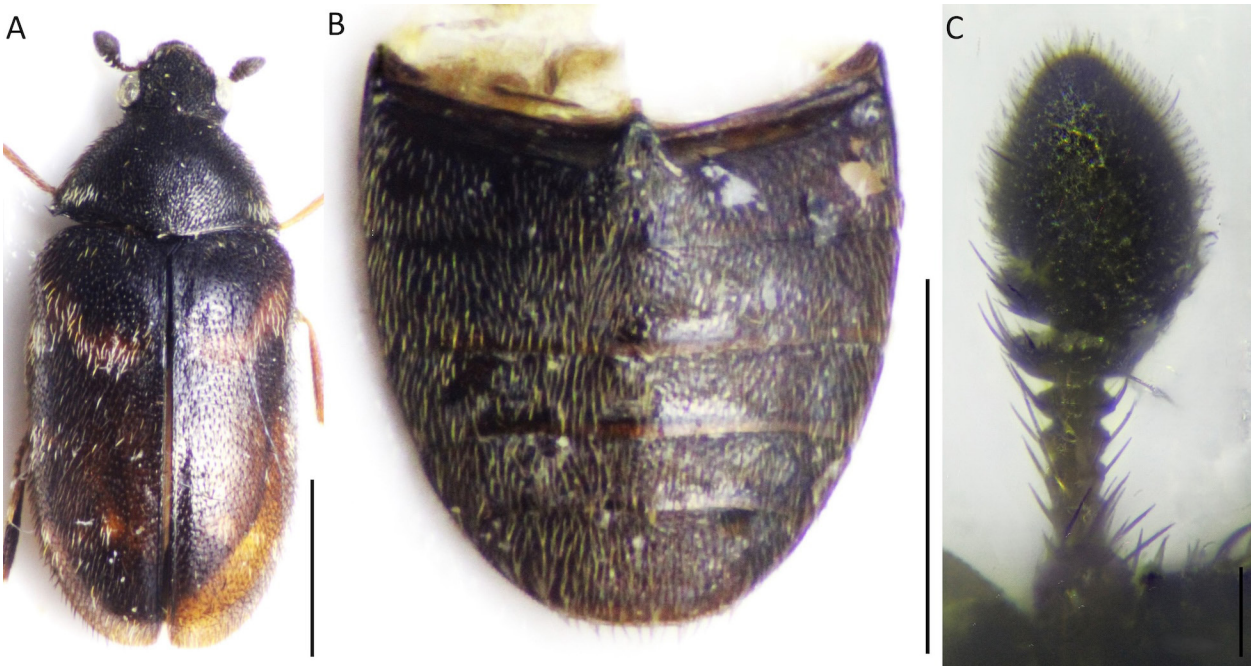

Figure 5. *Globicornis picta*. **A)** Habitus (scale bar = 1 mm). **B)** Ventrites (scale bar = 1 mm). C) Antenna (scale bar = 100 μm).

is often colour pattern variation in Dermestidae (e.g., Holloway et al. 2022), so a larger sample of the three species will be required to confirm whether identification is possible without dissection. Dissection and inspection of the aedeagus remains the most reliable way to differentiate between *G. picta*, *G. busei*, and *G. lienemanni.* The overall aedeagus shape in *G. lienemanni* (Fig. 4) and *G. picta* (Fig. 6) is less oval than *G. busei* (Fig. 2). In *G. picta*, the median lobe is not as broad as *G. busei* and wider than *G. lienemanni*. The hairs on *G. picta* paramere inner margin are evenly spaced, but longer, denser and more brush-like in *G. busei* and *G. lienemanni*.

Distribution. Figure 7 illustrates the distribution of the specimens from the current study overlaying the distribution reported by Háva (2024).

Discussion

Globicornis (*Globicornis*) *picta* is considered to have the widest distribution of the subgenus *Globicornis*, a region of about 3000 × 4000 km, so there was a chance that more than one species fell under the name *G. picta* from that very large area. From the sample of specimens examined, three species were found: *G. picta* from the western section of the distribution, *G. busei* from the eastern section of the distribution, and *G. lienemanni* from Cyprus and into Turkey. The sample size of specimens examined was relatively small, so a more extensive survey might reveal greater species distribution overlap.

Externally, the three species described here are very similar and the main differences are found in the male genitalia. The current study illustrates a further example of cryptic species within Dermestidae and bears similarity to the *Globicornis* study from Mallorca where a cryptic species, *G. peckhamae*, was found within the *G. bifasciata* range (Holloway and Canada Luna 2023). The discovery of two new species brings the number of known *Globicornis* (*Globicornis*) species from the Mediterranean region to 15, those from eastern Mediterranean (east of Croatia: 10) are in bold:

Globicornis bifasciata (Perris, 1866)
***Globicornis breviclavis* Reitter in Schneider and Leder, 1878**
***Globicornis busei* Holloway and Herrmann, new species**

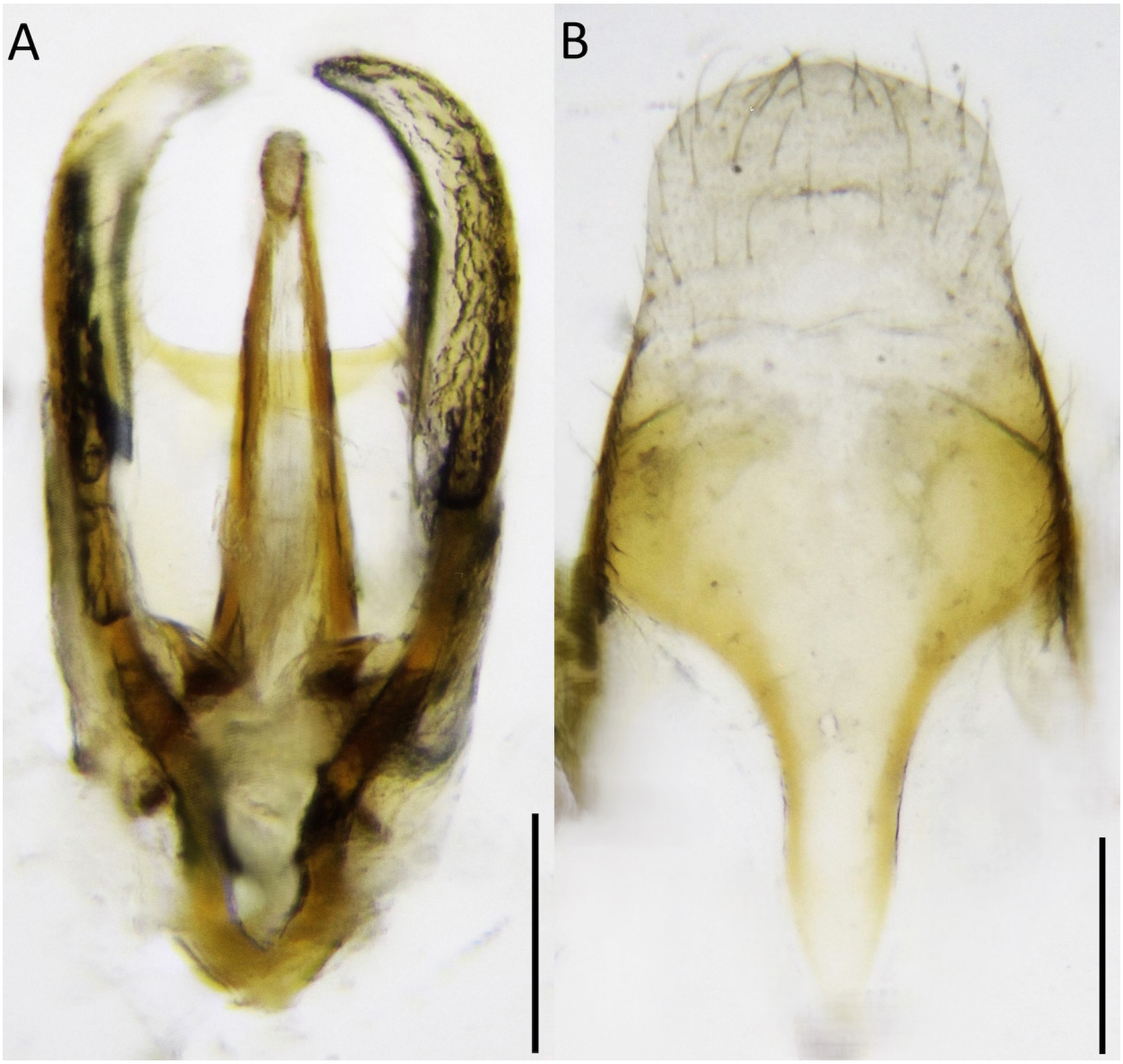

Figure 6. *Globicornis picta*. **A)** Aedeagus. **B)** Sternite IX. Scale bar = 100 μm in both cases.

***Globicornis cypriensis* Háva and Herrmann, 2014**
Globicornis fasciata (Fairmaire, 1859)
***Globicornis kafkai* Háva, 2000**
***Globicornis lienemanni* Holloway and Herrmann, new species**
Globicornis luckowi Herrmann, Háva and Kadej, 2011
Globicornis maroccana Kadej, Háva, Herrmann, Benyahia and Brustal, 2016
***Globicornis nigripes* (Fabricius, 1792)**
***Globicornis picta* Küster, 1851**
***Globicornis rufoguttatus* Pic, 1899**
***Globicornis signatipennis* Pic, 1899**
***Globicornis tristis* Reitter, 1881**

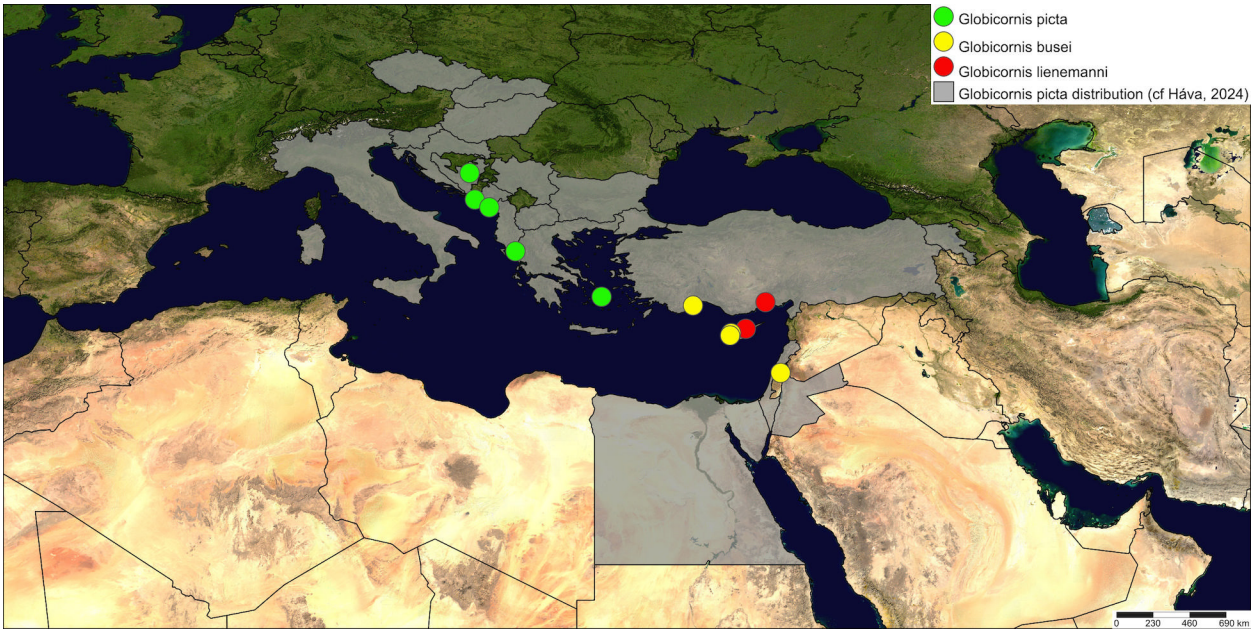

Figure 7. Specimen localities of the three *Globicornis* species discussed in this study, plotted on the distribution of *Globicornis picta* according to Háva (2024).

Globicornis variegata (Küster, 1851)

All additional eastern Mediterranean species highlighted above differ from the new species described in the current study by having a very large, triangular terminal antennomere, and/or having fewer than three orange fasciae, or, in the case of *G. tristis*, having a bulbous median lobe (Herrmann 2025).

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