



# Two new species of the family Rhynchitidae (Coleoptera: Curculionoidea) from Eocene Baltic amber, with key to species and assumed trophic relationships

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**Abstract.** Two new fossil species of *Baltocar* Kuschel, 1992 and *Pseudomesauletes* Legalov, 2001 (Curculionoidea: Rhynchitidae) are described from Eocene Baltic amber. *Baltocar sontagae* sp. nov. is similar to *B. groehni* Riedel, 2012 but differs in the shorter rostrum, tarsomere 1 shorter than tarsomere 5 and 1.4× as long as tarsomere 2, longer elytra, and shorter body. *Pseudomesauletes lobanovi* sp. nov. is similar to *P. culex* (Scudder, 1893) and *P. ibis* (Wickham, 1912): the new species differs from *P. culex* in the larger eyes, longer pronotum, being 0.44× shorter than elytra, and slightly smaller body size; from *P. ibis* it differs in the smaller body size, rostrum shorter than elytra, and weakly convex pronotum. This is the first record of *Pseudomesauletes* from Baltic amber and the sixth species of *Baltocar*. Keys to species of the genus *Baltocar* and to the Eocene species of the genus *Pseudomesauletes* are given. Assumed trophic relationships of these fossil taxa are discussed (urn:lsid:zoobank.org:pub:260EBE6E-DA6C-4D6D-A1D2-2C258224622F).

parts of the plant, usually gnawed by the female (Legalov, 2004). Thirty-five species were found in the fossil record (Legalov, 2015b; Bukejs and Legalov, 2019; Kania and Legalov, 2019). The earliest Rhynchitidae are known from the Cenomanian of Botswana and the Turonian New Jersey amber (Gratshev and Zherikhin, 2000; Legalov, 2015b). They are found in the Paleocene of France (Legalov, 2020b), the Eocene of the USA and Europe (Legalov, 2015b, 2020b), the Oligocene of Europe (Legalov, 2020b), the Miocene of Germany (Heer, 1847), and also Dominican and Mexican amber (Poinar and Brown, 2007; Poinar and Legalov, 2015). Nine rhynchitid species are described from Eocene Baltic amber (Voss, 1953; Legalov, 2012, 2013, 2015b, 2020a, b; Riedel et al., 2012; Kania and Legalov, 2019). The extinct genus *Baltocar* Kuschel, 1992 includes five species (Riedel et al., 2012; Legalov, 2015b, 2020a). A new species of this genus is discovered in examined Baltic amber material. The fossil species of the genus *Pseudomesauletes* Legalov, 2001 were known from Rovno amber (Bukejs and Legalov, 2019) and Florissant (Legalov, 2015b). A newly described species is the first record of this genus from the Baltic amber.

## 1 Introduction

Beetles of the family Rhynchitidae have more than 2000 described species in the Holocene fauna (Legalov, 2015a). Representatives of this family are distributed almost everywhere, with the centre of diversity in the tropics and subtropics (Legalov, 2007). The rhynchitid larvae develop in the dead

## 2 Material and methods

The material examined is deposited in the collection of the Museum of Amber Inclusions, University of Gdańsk (Poland) (MAIG). The amber pieces were polished by hand,

allowing improved views of the included specimens and were not subjected to any supplementary fixation.

The photographs of specimens were taken using a Canon 70D camera with a macro lens (Canon MP-E 65 mm). Extended depth of field at high magnifications was achieved by combining multiple images from a range of focal planes using Helicon Focus v. 6.0.18 software, and the resulting images were edited to create figures using Adobe Photoshop CS5.

The X-ray micro-CT observations of specimen 6703 (MAIG) were conducted at Daugavpils University, Daugavpils, Latvia (DU), using a Zeiss Xradia 510 Versa system. Scans were performed with a polychromatic X-ray beam at an energy of 40 kV and power of 3 W. Sample-to-detector distance was set to 17.5 mm, and source-to-sample distance was 47.7 mm. Tomographic slices were generated from 3001 rotational steps through a 360° rotation, using a 4× objective. The exposure time during each projection was set to 5 s. Acquired images were binned (2 × 2 × 2), giving a voxel size of 4.87 µm. Images were imported into the Dragonfly PRO (ver. 4.1) software platform for interactive segmentation and 3D visualization.

Morphological terminology follows Legalov (2007) and Lawrence et al. (2010).

### 3 Systematic paleontology

Order **Coleoptera** Linnaeus, 1758

Suborder **Polyphaga** Emery, 1886

Superfamily **Curculionoidea** Latreille, 1802

Family **Rhynchitidae** Gistel, 1848

Subfamily **Sayrevilleinae** Legalov, 2003

Tribe **Sayrevilleini** Legalov, 2003

Genus *Baltocar* Kuschel, 1992

*Baltocar sontagae* sp. nov.

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Figs. 1–2.

### Etymology

*Patronymic.* This new species is named in honour of our colleague Elżbieta Sontag (Gdańsk, Poland), who provided us the opportunity to study this interesting fossil specimen.

### Type material

*Holotype.* Collection number “6703” (MAIG) (ex. coll. Jonas Damzen JDC 9012), “Holotype/*Baltocar/sontagae* sp. nov./Bukejs et Legalov des. 2021” (red printed label); adult, sex apparently female. A complete beetle included in a transparent, yellow amber piece with approximate dimensions of 24 mm × 5 mm and a maximum thickness of 4 mm, preserved without supplementary fixation. The right part of the specimen is partially obscured by milky amber. Syninclusions: one Brachycera (Diptera) specimen.

### Type stratum

A predominantly Bartonian age (41.3–37.9 Ma) is interpreted for the extinct central European resin-producing forests, which produced the amber that has eroded out of Eocene Blue Earth layers (Bukejs et al., 2019). However, the vast majority of Baltic amber derives from the geological amber-bearing strata of the certainly Priabonian age (37.8–33.9 Ma) (Sadowski et al., 2017, 2020).

### Type locality

Baltic Sea coast, Yantarny settlement (formerly Palmnicken), Sambia (Samland) Peninsula, Kaliningrad Region, Russia.

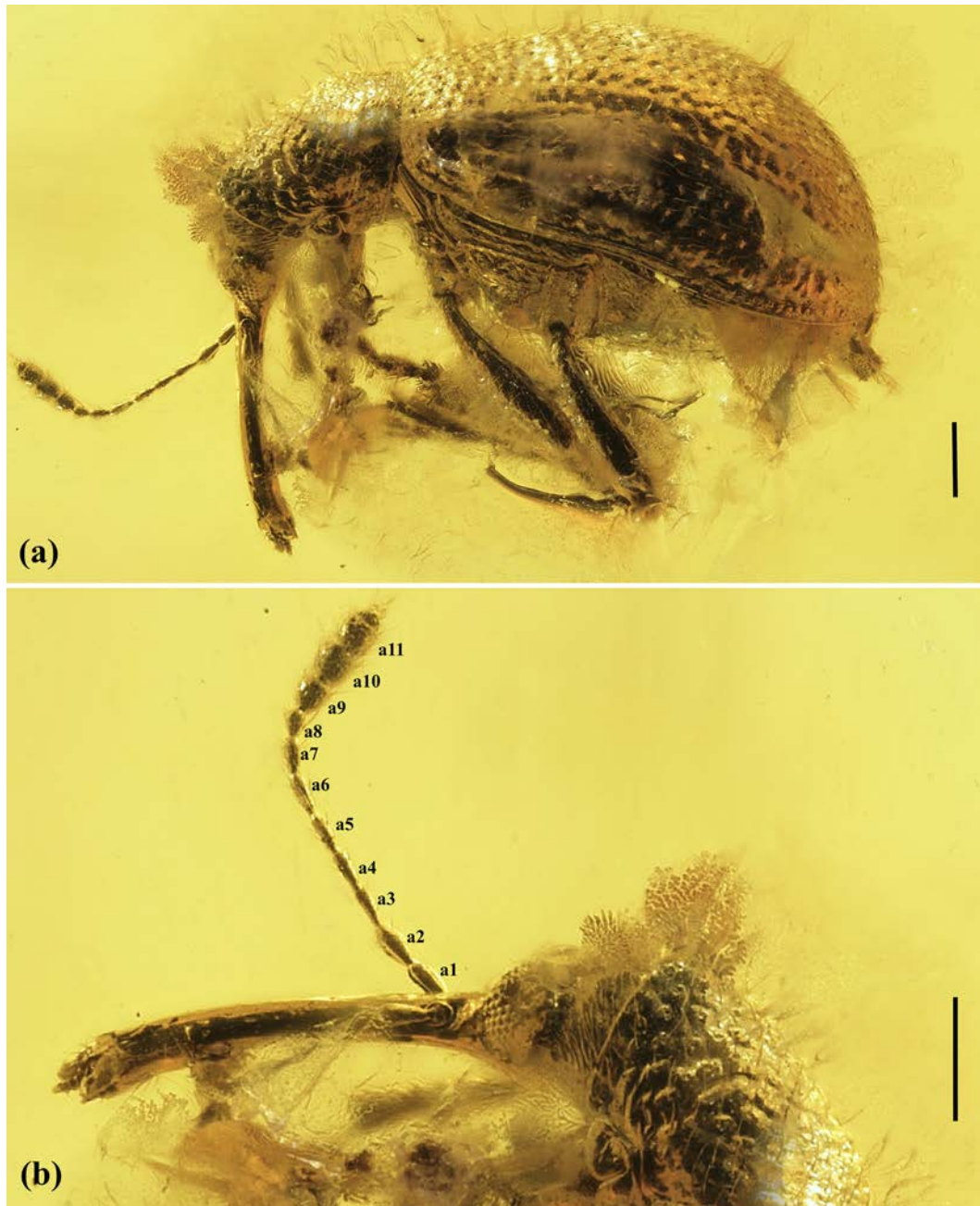
### Description

*Measurements.* Body length (without rostrum) about 2.4 mm, body maximum width 1.1 mm; rostrum length 0.82 mm, rostrum width basally 0.16 mm, medially 0.12 mm, apically 0.20 mm; pronotum length 0.7 mm, pronotum maximum width 0.6 mm; elytra length 1.7 mm, elytra maximum combined width 1.1 mm.

*Body.* Unicolourous black (as preserved). Pubescence: pronotum with sparse, short, semierect thin setae; elytra with sparse, short, recumbent to slightly semierect setae; and ventral side of body with sparse, fine, recumbent setae.

*Head.* Forehead flat, with middle furrow; vertex convex, covered with sparse and fine punctation; temples 0.6× as long as horizontal diameter of one eye, with sparse and fine punctation. Rostrum rather long, 1.1 times as long as pronotum, slightly curved (in lateral view), widened apically (in dorsal view), about 5.1× as long as wide basally, 6.8× as long as wide medially, and 4.1× as long as wide apically; covered with very fine and sparse punctures. Compound eyes large, oval, strongly convex, vertical diameter about 0.7× as horizontal diameter. Maxillary palpi with four palpomeres.

*Antennae.* With 11 antennomeres, not geniculate, with distinct three-antennomered club; moderately long, about 1.2× as long as rostrum, reaching elytral posterior margin, inserted at base of rostrum; scape cylindrical, 2.4× as long as wide, and almost as long as antennomere 2; antennomere 2 subcylindrical, about 2.2× as long as wide, as wide as scape and 1.7× as wide as antennomere 3; antennomeres 3–6 subconic-

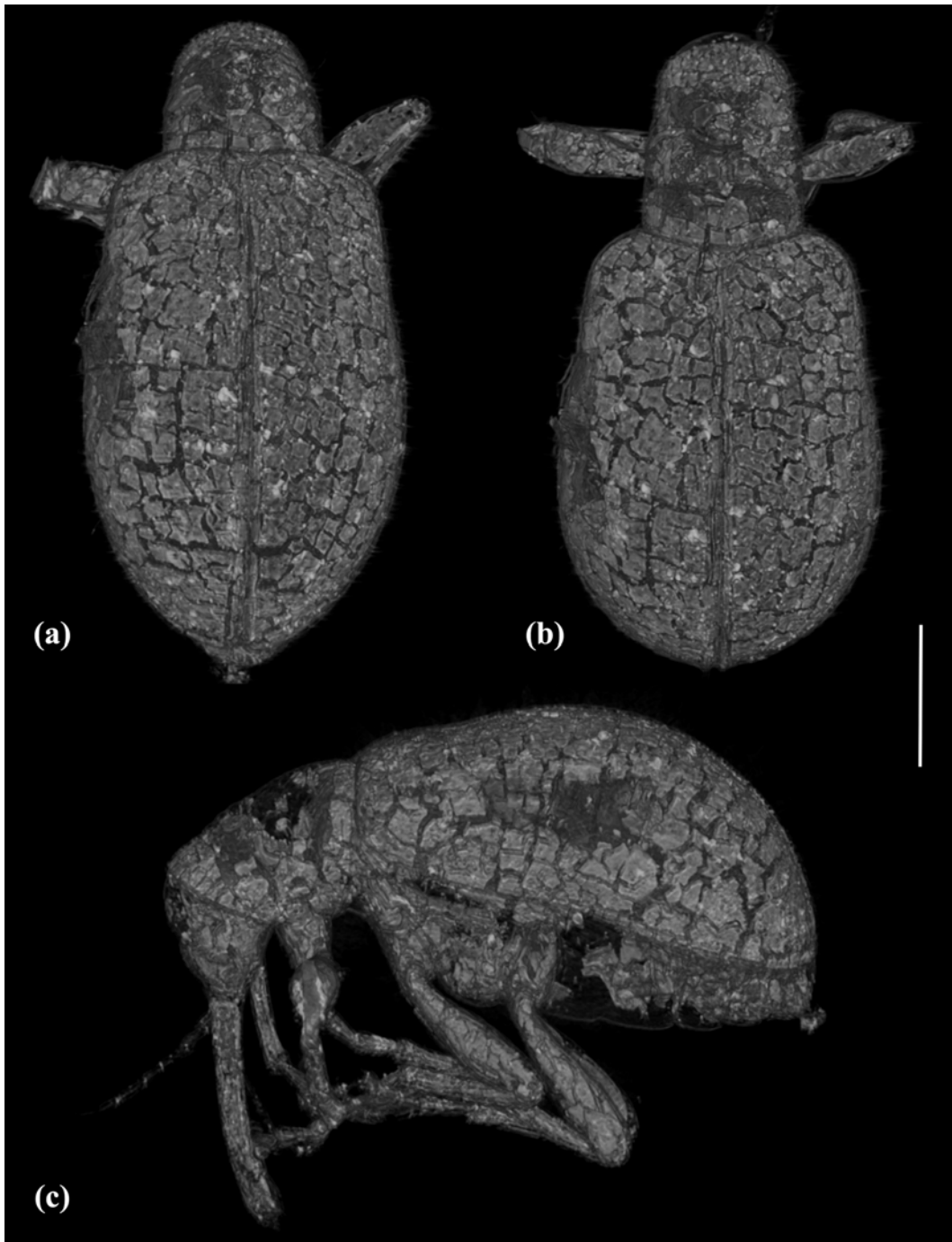


**Figure 1.** Photomicrographs of *Baltocar sontagae* sp. nov., holotype, 6703 (MAIG): (a) habitus, left lateral view; (b) details of forebody, lateral view. Scale bars = 0.25 mm. Abbreviations: a1–a11 denote antennomeres 1–11.

cal, elongate,  $3.3\times$  as long as wide, equal in size and shape; antennomere 7 conical, about  $2.7\times$  as long as wide, slightly shorter than antennomere 6; antennomere 8 shortest,  $2\times$  as long as wide; antennal club (antennomeres 9–11) about  $0.5\times$  as long as flagellum (antennomeres 2–8); antennomere 9 about  $1.1\times$  as long as wide, dilated apically, about  $2.2\times$  as wide as antennomere 8; antennomere 10 about  $1.1\times$  as long as wide, slightly wider than antennomere 9, slightly dilated apically; antennomere 11 spindle-shaped with pointed apex,

$1.6\times$  as long as wide; relative length ratios of antennomeres 1–11 equal to 12 : 11 : 10 : 10 : 10 : 10 : 8 : 6 : 8 : 9 : 13.

*Pronotum.* Bell-shaped, elongate,  $1.6\times$  as long as wide at apex,  $1.4\times$  as long as wide in middle and at base, widest in posterior one-fifth, gradually narrowed anteriorly; moderately densely covered with small punctuation; irregularly rugose; disc flat; lateral margins straight, posterior margin distinctly convex, anterior margin convex in dorsal view.



**Figure 2.** X-ray micro-CT renderings of *Baltocar sontagae* sp. nov., holotype, 6703 (MAIG), habitus: (a) dorsal view; (b) dorso-frontal view; (c) left lateral view. Scale bar = 0.5 mm.

*Scutellum.* Minute, subtriangular, poorly visible in studied specimen.

*Elytra.* Widely oval, elongate, convex,  $2.3\times$  as long as wide combined at anterior margin,  $1.5\times$  as long as wide combined medially,  $2.0\times$  as long as wide combined in posterior one-quarter, widest behind middle,  $2.4\times$  as long as pronotum; elytral base concave, distinctly wider than poste-

rior pronotal margin; humeral callus weak; elytral punctation small and rather dense (punctures at lateral sides distinctly sparser), forming regular rows, distance between punctures in rows equal to  $0.7\text{--}2.0\times$  diameter of puncture, intervals slightly convex, distance between rows about  $2.0\text{--}3.5\times$  diameter of puncture.

*Thorax.* Prohypomera with fine and rather sparse punctation. Pre- and postcoxal parts of prosternum short, subequal in length. Epipleuron narrow, with fine punctures. Metaventricle with small punctation at lateral sides; disc convex. Metepisternum narrow, about 6.3× as long as wide medially; with fine punctation.

*Legs.* Rather long, slender. Procoxae conical, located in middle of prosternum; mesocoxae round; metacoxae oval, transverse, slightly shorter than abdominal ventrite 1. Femora clavate, slightly swollen in apical portion, covered with fine, sparse punctation; profemora about 3.7× as long as wide medially, metafemora about 3.9× as long as wide medially. Tibiae cylindrical, almost straight (protibiae slightly curved), with sparse and fine punctures, with fringe of dark spinulae apically, and apparently with two small apical spurs (distinctly visible on protibiae); protibial about 9× as long as wide medially, metatibia about 6× as long as wide medially. Tarsi long, slightly shorter than tibiae, metatarsus about 0.8× as long as metatibia; tarsomere 1 elongate, slightly dilated apically, tarsomere 2 subconical, elongate, tarsomere 3 bilobed, nearly as long as wide, apical tarsomere subcylindrical, elongate, slightly curved; metatarsomere 1 about 2.9× as long as maximum wide, shorter than tarsomere 5 and 1.4 times as long as tarsomere 2, 0.4× as long as tarsomeres 2–5 combined, metatarsomere 2 about 2.1× as long as maximum wide, metatarsomere 3 about 1.1× as long as maximum wide, apical metatarsomere about 5.5× as long as maximum wide; relative length ratios of metatarsomeres 1–3, 4 subequal to 4 : 3 : 2 : 4. Tarsal claws strongly divergent, free, simple.

*Abdomen.* Convex, covered with small and sparse punctation; all sutures distinct, complete and straight; ventrites 1 and 2 equal in length, ventrite 3 about 0.7× as long as ventrite 2, ventrite 4 about 0.8× as long as ventrite 3, ventrite 5 smallest, about 0.7× as long as ventrite 4, with widely rounded apical margin; relative length ratios of ventrites 1–5 equal to 6 : 6 : 4 : 3 : 2 (medially).

#### Note

Sex of examined specimen determined based on micro-CT results. There is no sclerotized structure resembling aedeagus inside the abdominal cavity; therefore, the specimen appears to be female.

#### Comparison

*Baltocar sontagae* sp. nov. is similar to *B. groehni* Riedel, 2012 but differs in the shorter rostrum; tarsomere 1 shorter than tarsomere 5 and 1.4 times as long as tarsomere 2; longer elytra and shorter body.

#### Key to the species of the genus *Baltocar*

(according to Riedel et al. (2012) and Legalov (2020a) with modifications)

1. Elytral punctation irregular. Rostrum shorter or subequal to pronotum (p. 2).
  - Elytral punctation forming regular rows. Rostrum longer or subequal to pronotum (p. 3).
2. Body covered with dense setae. Rostrum slightly curved, subequal to pronotum (*convexus* Legalov, 2015b).
  - Body without distinct pubescence. Rostrum distinctly curved, shorter than pronotum (*subnudus* Riedel, 2012).
3. Pronotal disc coarsely punctate. Setae widened (*succinicus* (Voss, 1953)).
  - Pronotal disc transversely irregularly rugose. Setae narrow (p. 4).
4. Pronotum with slightly rounded lateral sides, about 1.1× as long as wide. Tarsomere 1 about 0.6× as long as tarsomeres 2–5 combined (*hoffeinsorum* Riedel, 2012).
  - Pronotum with subparallel lateral sides (Fig. 2c), 1.4× as long as wide. Tarsomere 1 about 0.4× as long as tarsomeres 2–5 combined (p. 5).
5. Rostrum long, 18.0× as long as wide medially. Tarsomere 1 slightly longer than tarsomere 5 and 1.2× as long as tarsomere 2. Elytra 1.2× times as long as maximum combined width. Body longer, 2.9 mm (*groehni* Riedel, 2012).
  - Rostrum shorter, 6.8× as long as wide medially. Tarsomere 1 shorter than tarsomere 5 and 1.4× as long as tarsomere 2. Elytra 1.5× as long as maximum combined width. Body shorter, 2.4 mm (*sontagae* sp. nov.).

#### Remarks

The studied amber specimen possesses the combination of characters corresponding to the family Rhynchitidae: antennae not geniculate, quite long ventrites 3 and 4, narrow epipleuron, tarsal claws free at base, not extended tarsomere 1. Strongly divergent tarsal claws suggest placement in the subfamily Sayrevilleinae and tarsal claws lacking teeth assignments of the specimen to the tribe Sayrevilleini. The new species belongs to the genus *Baltocar* based on the short precoxal portion of the prosternum and forehead with middle furrow.

Subfamily **Rhynchitinae** Gistel, 1848

Tribe **Auletini** Desbrochers des Loges, 1908

Subtribe **Pseudomesauletina** Legalov, 2003

Genus *Pseudomesauletes* Legalov, 2001

Subgenus *Pseudomesauletes* Legalov, 2001

*Pseudomesauletes* (*Pseudomesauletes*)  
*lobanovi* sp. nov.

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Fig. 3.

### Etymology

*Patronymic.* The name of this new species is dedicated to the memory of the late Andrey L'vovich Lobanov, known specialist in Cerambycidae and founder of coleopteran website "Beetles and Coleopterists" (<http://www.zin.ru/animalia/coleoptera/eng>, last access: 30 April 2021).

### Type material

Holotype: collection number "6701" (MAIG) (ex. coll. Jonas Damzen JDC 9318), "Holotype/*Pseudomesauletes/lobanovi* sp. nov./Bukejs et Legalov des. 2021" (red printed label); adult, female. A complete beetle included in a transparent, yellow amber piece with approximate dimensions of 33 mm × 11 mm and a maximum thickness of 7 mm; preserved without supplementary fixation. Syninclusions: one Diptera specimen, body parts (legs and wing) of cf. Diptera, few stellate trichomes, and some small gas vesicles.

### Type stratum

A predominantly Bartonian age (41.3–37.9 Ma) is interpreted for the extinct central European resin-producing forests, which produced the amber that has eroded out of Eocene Blue Earth layers (Bukejs et al., 2019). However, the vast majority of Baltic amber derives from the geological amber-bearing strata of the certainly Priabonian age (37.8–33.9 Ma) (Sadowski et al., 2017, 2020).

### Type locality

Baltic Sea coast, Yantarny settlement (formerly Palmnicken), Sambia (Samland) Peninsula, the Kaliningrad Region, Russia.

### Description

*Measurements.* Body length (without rostrum) about 3.3 mm, body maximum width 1.4 mm; rostrum length 1.9 mm, rostrum width basally 0.3 mm, medially 0.2 mm, apically 0.3 mm; pronotum length 1.0 mm, pronotum maximum width 0.9 mm; elytra length 2.2 mm, elytra maximum width 1.4 mm.

*Body.* Brown (as preserved), head and rostrum dark brown. Pubescence: rather dense, short and recumbent.

*Head.* Dorsally covered with small, sparse punctation, distance between punctures about 0.5–1.5 × diameter of one puncture, ventrally with sharp transverse wrinkles and very sparse punctation; forehead wide, convex; vertex slightly impressed. Rostrum very long, about 1.9 × as long as pronotal length, almost straight (in lateral view), widened to apex (in dorsal view), about 6 × as long as wide basally, 9.5 × as long as wide medially, and 6 × as long as wide apically; sparsely covered with fine punctures, punctation denser in basal portion; with longitudinal carina in basal one-third of rostral length. Rostral pleurostomal sinus deep and membranous. Mandibles externally dentated. Maxillary palpi four-articled. Gular suture single. Compound eyes rather large, subspherical, strongly convex.

*Antennae.* With 11 antennomeres, not geniculate, with distinct three-antennomered club; moderately long, about 0.7 × as long as rostrum length, reaching anterior one-third of pronotum, inserted in basal one-third of rostral length, sparsely covered with semierect setae; scape cylindrical, 2 × as long as wide, 0.6 × as long as antennomere 2, antennomeres 2–6 elongate-oval, antennomere 3 about 1.3 × as long as antennomere 2, antennomeres 7–8 short, slightly dilated apically, antennal club about as long as antennomeres 5–6 combined, antennomere 9 as long as wide, dilated apically, wide, about 2 × as wide as antennomere 8; antennomere 10 slightly transverse, dilated apically, wide, antennomere 11 elongate oval with tapered apex; relative length ratios of antennomeres 1–11 equal to 7 : 11 : 14 : 11 : 9 : 6 : 5 : 3 : 5 : 5 : 7.

*Pronotum.* Nearly as long as wide, widest medially, narrowed posteriad and anteriorly; densely covered with small punctation (punctures distinctly larger than punctures of head), distance between punctures about 0.3–1.1 × diameter of one puncture (punctation on disc sparser); disc evenly convex; lateral margins convex medially and subparallel anteriorly and posteriorly, posterior margin straight, anterior margin convex in dorsal view.

*Scutellum.* Subpentagonal with widely rounded apex, transverse, about 1.25 × as wide as long, rather large, densely covered with fine punctation.

*Elytra.* Almost rectangular, elongated, widest behind middle, convex, not ribbed, in anterior one-third slightly impressed medially; elytral base distinctly wider than posterior pronotal margin; humeral callus weak; elytral punctation small and dense, forming regular rows (distinct in basal half), intervals flat; elytral apices rounded together, without large depressed spots and hair stains.

*Thorax.* Prohypomera with small, dense punctation (as pronotal punctation). Epipleuron narrow. Metaventricle and metepisternum with fine and very dense punctation.

*Legs.* Long, slender. Femora spindle-shaped, slightly flattened, covered with fine, sparse punctation. Tibiae cylindrical, almost straight, slightly dilated distally, with fringe of dark spinula apically, lacking costate dorsal margin. Tarsi distinctly shorter than tibiae, protarsus about 0.5 × as long



**Figure 3.** Photomicrographs of *Pseudomesauletes lobanovi* sp. nov., holotype, 6701 (MAIG), habitus: (a) dorsal view; (b) ventro-lateral view; (c) right lateral view. Scale bars = 1.0 mm.

as protibial length; tarsomere 1 trapezoidal, elongate, not extended, tarsomere 2 trapezoidal, distinctly dilated apically, tarsomere 3 wide, deeply bilobed, with dense setation ventrally, terminal tarsomere elongated, subcylindrical, slightly curved. Tarsal claws slightly divergent, free, with long spine basally.

*Abdomen.* Convex, covered with small punctation; ventrites almost homonomous; ventrites 1–3 fused; ventrite 2  $1.4\times$  as long as ventrite 1; ventrite 3 subequal to ventrite 2 and  $2.1\times$  as long as ventrite 4; ventrite 4 about  $1.7\times$  as long as ventrite 5; ventrite 5 smallest, with rounded apical margin.

#### Note

The specimen is a female: elytral apex lacks hair stains, and abdominal ventrites 1–3 are fused.

#### Comparison

*Pseudomesauletes lobanovi* sp. nov. is similar to the North American Eocene species *P. culex* (Scudder, 1893) and *P. ibis* (Wickham, 1912), in the long rostrum, almost equal to the length of the elytra. The new species differs from *P. culex* in the large eyes; longer pronotum,  $0.44\times$  shorter than elytra ( $0.25\times$  shorter than elytra in *P. culex*); and slightly smaller body size. It differs from *P. ibis* in the small body size, rostrum shorter than elytra, and weakly convex pronotum. Additionally, the new species differs from *P. groehni* Bukejs et Legalov, 2019 from Rovno amber in the long rostrum and narrower antennae club.

#### Key to the Eocene species of the genus *Pseudomesauletes*

1. Rostrum 1.4 times as long as elytra. Body large, 7.0 mm. Florissant (*ibis* (Wickham, 1912)).
  - Rostrum shorter than elytra. Body less than 6.1 mm (p. 2).
2. Rostrum longer,  $0.92\text{--}0.96\times$  shorter than elytra (p. 3).
  - Rostrum shorter,  $0.58\text{--}0.85\times$  shorter than elytra (p. 4).
3. Eyes large. Pronotum  $0.44\times$  as long as elytra. Body length 3.3 mm. Baltic amber (*lobanovi* sp. nov.).
  - Eyes small. Pronotum  $0.25\times$  as long as elytra. Body length 4.2 mm. Florissant (*culex* (Scudder, 1893)).
4. Rostrum longer,  $0.85\times$  shorter than elytra. Body large (6.1 mm). Florissant (*obliquus* (Wickham, 1913)).
  - Rostrum shorter,  $0.57\text{--}0.58\times$  shorter than elytra. Body smaller, 3.2–4.9 mm (p. 5).
5. Body larger, 4.9 mm. Rostrum  $4.0\times$  as long as wide apically. Florissant (*striaticeps* (Wickham, 1911)).

- Body smaller, 3.2 mm. Rostrum  $6.25\times$  as long as wide apically. Rovno amber (*groehni* Bukejs et Legalov, 2019).

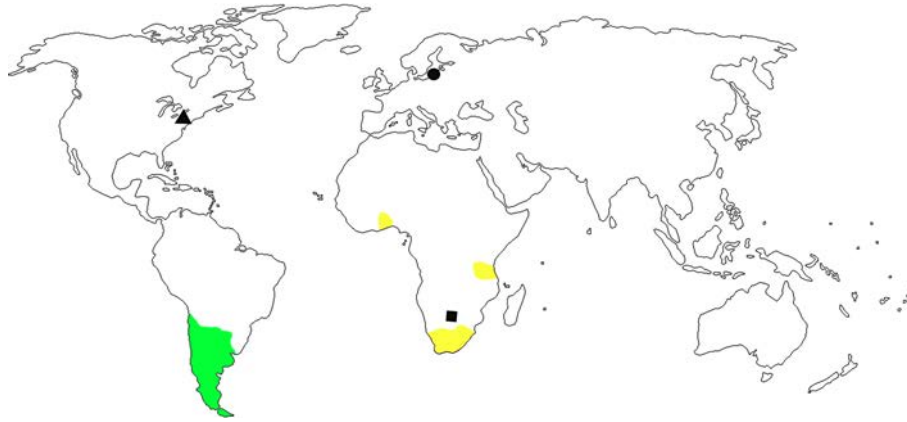
#### Remarks

The studied amber specimen belongs to the family Rhynchitidae based on the not geniculate antennae, single gular suture, narrow epipleuron, four-articled maxillary palpi, ventrites 2 and 3 subequal in length, not extended tarsomere 1, tarsal claws free at base, and deep and membranous rostral pleurostomal sinus. Slightly divergent tarsal claws suggest its placement in the subfamily Rhynchitinae and externally dentated mandibles – in the supertribe Rhynchititae. Rounded apex of the elytra when both together confirm the assignment of the species to the tribe Auletini. The new species belongs to the subtribe Pseudomesauletina based on the tarsal claws with a spine, tibia lacking costate dorsal margin and antennae being inserted before middle of the rostrum. The body is covered with short sparse recumbent setae, elytra are not ribbed, elytral apices are without large depressed spots, antennomere 3 is longer than antennomere 2, antennae are inserted before the middle of the rostrum, and eyes are strongly convex, which suggest placement in the genus *Pseudomesauletes*. The specimen was assigned to the subgenus *Pseudomesauletes* s. str. on the basis of the almost rectangular elytra and the brown body colouration.

#### 4 Discussion

The fauna of the Eocene Rhynchitidae is rather diverse and tribes Sayrevilleini, Auletini, Rhynchitini, and Eugnamptini are found in its deposits (Legalov, 2020b). The subfamily Sayrevilleinae is represented by three tribes (Legalov, 2015a, 2018). Recent Minurini Legalov, 2003 and Vossicartini Legalov, 2003 are distributed in Chile, Argentina, and Africa (Legalov, 2007, 2018). The Sayrevilleini is an extinct tribe and known from fossils only (Fig. 4). The genus *Baltocar* is found in Eocene Baltic amber but not found in other Paleogene deposits (Legalov, 2020b). The closely related genus *Sayrevilleus* Gratshev et Zherikhin, 2000, which is very close to it, was described from the Late Cretaceous amber of New Jersey. The genus *Orapauletes* Legalov, 2009 was described from the Turonian lacustrine, Orapa, Cretaceous of Botswana. Due to the absence of the recent representatives of the tribe Sayrevilleini, the trophic links of its representatives are difficult to determine. It is habitually similar to the recent genera of the subtribe Auletina, which develops on *Juniperus* and *Cupressus* (Legalov, 2002). *Juniperus* are recorded in New Jersey and Baltic amber (Czeczott, 1961; Grimaldi and Nascimbene, 2010). *Cupressus* is found in Baltic amber (Czeczott, 1961; Alekseev, 2018). Six rather similar species of *Baltocar* inhabiting the same area were probably associated with different plants. Fourteen species of Cupressaceae are known from Baltic amber (Sadowski et al.,





**Figure 4.** Distribution of Sayvilleinae: Minurini (green shaded area), Vossicartini (yellow shaded area), and Sayvilleini: six species of *Baltocar* from Eocene Baltic amber (black dot), *Sayvilleus grimaldii* Gratshev et Zherikhin, 2000 from Late Cretaceous amber of New Jersey (black triangle), and *Orapauletes cretaceus* Legalov, 2009 from Late Cretaceous formation of Botswana (black square).



**Figure 5.** Distribution of the genus *Pseudomesauletes* with extant (green area) and fossil records: records from Florissant formation, Colorado, USA (black square); record from Rovno amber (black octagon); and *P. lobanovi* sp. nov. from Baltic amber (black dot).

2017; Alekseev, 2018). It can be assumed that extinct representatives of the genus *Baltocar* were associated with them.

The genus *Pseudomesauletes* (Rhynchitinae, Auletini) is distributed in East and South Asia, the Zonda Islands, Africa, Madagascar, North America, and Colombia (Legalov, 2007, 2018), but it is absent in Western Palearctic (Fig. 5). Fossil records are known from the Florissant Formation, Colorado, USA (Scudder, 1893; Wickham, 1912), and Rovno amber (Bukejs and Legalov, 2019). The newly described extinct species from Eocene Baltic amber, *P. lobanovi* sp. nov., belongs to the species group with the long rostrum almost equal to or longer than the elytra. In the Holocene fauna, such species are absent but are recorded in the Eocene deposit of North America (Legalov, 2015b, 2020b). The trophic relationships of most recent *Pseudomesauletes* species are unknown (Legalov, 2003). *Pseudomesauletes uniformis* (Roelofs, 1874) develops in flower buds of *Rosa* (Lee and Morimoto, 1988), and *P. formosanus* (Voss, 1921) was recorded on *Rubus* and Rosaceae (Voss, 1934). Fossil

species of *Pseudomesauletes* were probably related to the family Rosaceae as well, as they quickly differentiated in the Eocene (DeVore and Pigg, 2007) and are found in Baltic (Czeczott, 1961; Weitschat and Wichard, 2002) and Rovno amber (Sokoloff et al., 2018) and in the deposits of Florissant (Manchester, 2001).

**Data availability.** All material included in this paper is deposited in the Museum of Amber Inclusions, University of Gdańsk, Poland, and all data are included in the description. X-ray microtomography volume renderings of the habitus, habitus of *Baltocar sontagae* sp. nov., holotype, 6703 (MAIG) are available as a Video Supplement.

**Video supplement.** Volume renderings of X-ray microtomography of the habitus of *Baltocar sontagae*, holotype, 6703 (MAIG). The video is available at <https://doi.org/10.5446/51994> (Bukejs and Legalov, 2021).

*Author contributions.* AB and AAL designed the study, drafted the manuscript, and contributed to the writing and discussion. AB prepared new species descriptions and plates. AAL corrected new species descriptions and performed new systematic taxa placement.

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