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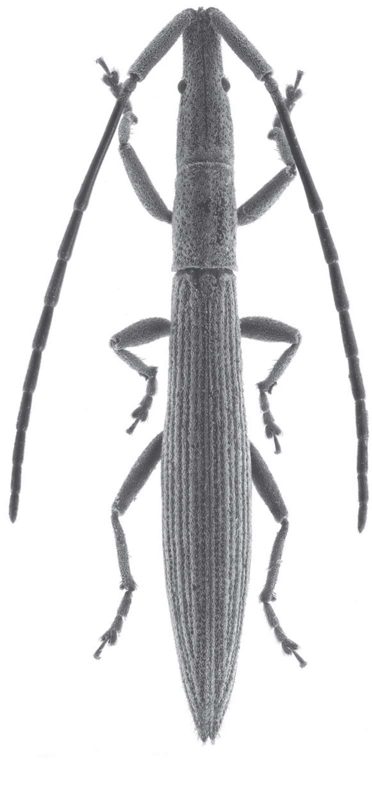

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A new species of *Xyletinus* Latreille, 1809 (Coleoptera: Ptinidae: Xyletininae) from Eocene Baltic amber, with a key to known fossil species

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Abstract. A new extinct species of the genus *Xyletinus* Latreille, 1809, namely *X.* (s. str.) *lobanovi* **sp. n.**, is described and illustrated from Eocene Baltic amber. This new extinct species resembles *X. carsteni* Háva et Zahradník, 2020 but differs from it in the dull, not shiny pronotum and elytra, uniformly rufous body and appendages and the lesser body size. A new species is close to *X. arturi* Háva et Zahradník, 2019, but can be distinguished in the lesser body size, flat elytral intervals and the widest in anterior one-third pronotum. A key to fossil species of *Xyletinus* is provided. Additionally, new fossil records for *Ernobius nadravicus* Alekseev, 2014 and *Xyletinus arturi* Háva et Zahradník, 2019 are presented.

Key words: Coleoptera, Ptinidae, new species, Cenozoic, Tertiary, fossil resin.

Новый вид *Xyletinus* Latreille, 1809 (Coleoptera: Ptinidae: Xyletininae) из эоценового балтийского янтаря и определительная таблица известных ископаемых видов рода

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Резюме. Приводится описание и иллюстрации нового ископаемого вида рода *Xyletinus* Latreille, 1809, *X.* (s. str.) *lobanovi* **sp. n.** из эоценового балтийского янтаря. Ископаемый вид сходен с эоценовым *X. carsteni* Háva et Zahradník, 2020, отличаясь от него матовой, неблестящей переднеспинкой и надкрыльями, одноцветно-рыжеватым цветом тела и конечностей, а также меньшими размерами. Отличительными признаками нового вида от габитуально сходного ископаемого *X. arturi* Háva et Zahradník, 2019 могут быть: меньший размер тела, плоские междурядья надкрылий, форма переднеспинки с наибольшей шириной в передней трети. Составлена определительная таблица вымерших видов рода *Xyletinus*. В дополнение приводятся новые находки ископаемых видов точильщиков *Ernobius nadravicus* Alekseev, 2014 и *Xyletinus arturi* Háva et Zahradník, 2019.

Ключевые слова: Coleoptera, Ptinidae, новый вид, кайнозой, третичный период, ископаемая смола.

Introduction

Altogether, 825 fossil coleopteran species belonging to 516 genera have been described from Baltic amber (as of 7 March 2021). The family Ptinidae with 45 described species from this Lagerstätte is lesser in described species diversity than Staphylinidae (109 species), Cantharidae (83 species) and Curculionidae (81 species) only. Taking into account the number of different non-described ptinid taxa reported from Baltic amber [Klebs, 1910; Spahr, 1981; Hieke, Pietrzeniuk, 1984; Bukejs, Alekseev, 2015] and the known botanical palaeodiversity of trees in "amber forests" [Sadowski et al., 2017, 2020; Alekseev, 2018] with numerous potential host plants, the total palaeodiversity of the xylophagous representatives of the family in Baltic amber should be estimated as one of the highest within Coleoptera. In the current paper, a new species of *Xyletinus* Latreille, 1809 from Eocene Baltic amber is described, illustrated, and compared to the recent representatives and previously described six Baltic amber species. A key to the known *Xyletinus* species from Eocene ambers is provided.

Material and methods

The material examined is deposited in the following collections:

– the collection of the Museum of Amber Inclusions, University of Gdańsk (MAIG, Poland);

– the private collection of Jonas Damzen (JDC, Vilnius, Lithuania).

The amber pieces were polished by hand, allowing improved views of the included specimens, and was not subjected to any supplementary fixation.

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The photographs of specimens were taken using a Canon 70D camera with a macro lens (Canon MPE-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.

Observation of the studied beetle specimen was made using a Nikon SMZ 745T stereomicroscope. The measurements were made using an ocular micrometer in a stereomicroscope.

The following references were used for the generic attribution and comparison with recent and fossil taxa: Kofler [1969], White [1973, 1980, 1985], Español [1979], Gottwald [1977, 1983], Logvinovskij [1985], Lundberg [1991], Toskina [2002, 2005, 2006, 2009, 2015], Arango and Young [2012], Alekseev and Bukejs [2019a, b], Háva and Zahradník [2019, 2020].

Systematic Paleontology

Family Ptinidae Latreille, 1802
Subfamily Xyletininae Gistel, 1856
Tribe Xyletinini Gistel, 1856
Genus *Xyletinus* Latreille, 1809
Subgenus *Xyletinus* Latreille, 1809

The new fossil species was placed into the genus *Xyletinus* within the tribe Xyletinini based on the combination of the following characters: head deflexed; antennae weakly serrate medially; eyes small and widely separate; metathoracic ventrite and abdomen without excavation for reception of meso- and metathoracic legs; and elytra striate. The studied specimen can be distinguished from the extant representatives of the closely related genus *Vrilletta* LeConte, 1874 in flat and wide elytral intervals and not strongly serrate or pectinate antennomeres 4–8; from the extant and apparently similar species of *Euvrilletta* Fall, 1905 it differs in small and widely separated eyes.

The combination of the following characters allows the placement of *Xyletinus lobanovi* **sp. n.** to the nominatypical subgenus: elytral pubescence normal (not directed laterally); eyes small, oval, not strongly prominent; frons wide; antennomeres 4–8 serrate; ultimate maxillary and labial palpomeres triangular, widened; and tarsi short.

It should be noted, that the taxonomy of Xyletinini including nine genera [Zahradník, Háva, 2014] (*Euvrilletta* Fall, 1905, *Neoxyletinus* Español, 1983, *Paraxyletinus* Español, 1972, *Pseudoptilinus* Leiler, 1969, *Trachelobrachys* Gemminger, 1870, *Vrilletta* LeConte, 1874, *Xyletinodes* Español, 1983, *Xyletinomorphus* Pic, 1923, *Xyletomerus* Fall, 1905, and *Xyletinus* Latreille, 1809 with six subgenera) is particularly problematic. White [1985] pointed out confusion in suprageneric and generic assignments of extant North American species, the relationships within three genera (*Xyletinus*, *Euvrilletta*, and *Vrilletta*) should be re-evaluated [Arango, Young, 2012]. In the absence of the modern world-wide revision of the tribe, all above mentioned makes our generic placement of our extinct species more or less tentative.

Xyletinus (*Xyletinus*) *lobanovi* sp. n.
(Figs 1–5)

Type material. Holotype: collection number "6711" (MAIG, ex. coll. Jonas Damzen JDC 9256); adult, sex unknown. Almost complete beetle (antennomere 11 of right antenna is missing) included in a transparent, yellow amber piece with approximate dimensions of 30 × 17 mm and a maximum thickness of 6 mm; preserved without supplementary fixation. Syninclusions: few stellate fagacean trichomes, and small gas vesicles.

Type stratum. Mid-late Eocene, 48–34 Ma [Sadowski et al., 2017, 2020; Seyfullah et al., 2018; Bukejs et al., 2019; Kasiński et al., 2020].

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

Description. Measurements: total body length about 2.7 mm; pronotum length 0.8 mm, pronotum maximum width 1.2 mm; elytra length 1.8 mm, combined maximum width of elytra 1.3 mm. Body elongate, nearly parallel-sided, slightly convex; glabrous; unicolorous rufous (as preserved), shagreened, dull.

Head hypognathous, turned downwards and almost not visible in dorsal view; covered with microreticulation dorsally and with sparse, small punctation ventrally; frons wide, flat, without carina or longitudinal impression. Compound eyes small, slightly convex, entire, oval, with small distinct facets, without ommatidial setae, widely separated. Terminal labial palpomere triangular. Maxillary palpi with four palpomeres; palpomeres 2 and 3 subequal in size and shape; palpomere 3 small, subcylindrical, about 0.4 times as long as palpomere 4 length; palpomere 4 largest, triangular, strongly widened, about 3.3 times as wide as palpomere 3.

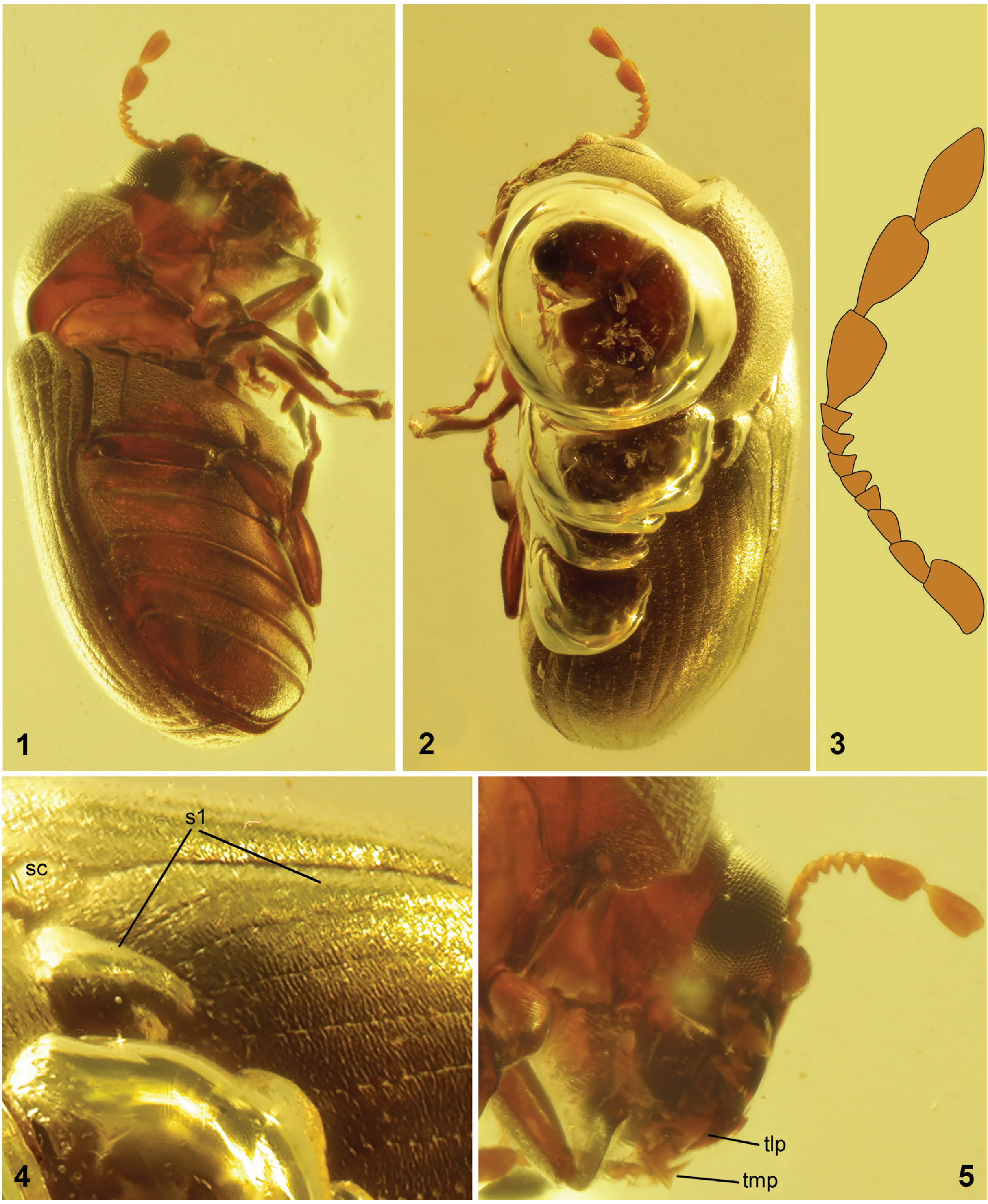
Antennae 11-segmented, weakly serrate medially, short (reaching about posterior one-third of pronotum), with few fine setae; scape subcylindrical, elongate, 1.7 times as wide as pedicel, covered with fine punctation; pedicel cylindrical, about 1.5 times as long as wide; antennomere 3 conical, dilated apically, narrower than pedicel; antennomeres 4–8 serrate, triangular, as long as wide, equal in size; antennomere 9 widely oval with angular outer margin, dilated apically, 1.7 times as long as wide; antennomere 10 oval with angular outer margin, slightly dilated apically, 2 times as long as wide; antennomere 11 elongate-oval, with narrowly rounded apex, 2.9 times as long as wide. Relative length ratios of antennomeres 1–11 equal to 18 : 8 : 8 : 5 : 5 : 5 : 5 : 5 : 20 : 20 : 20. Antennal insertion limited by short carina posteriad.

Pronotum convex, transverse, 1.5 times as wide as long, widest in anterior one-third, margined; covered with moderately fine and dense granulation in posterior portion and antero-laterally (granules less distinct on disc); shagreened. Anterior pronotal angles subrectangular, slightly rounded, not visible in dorsal view; posterior pronotal angles widely rounded and barely marked. Lateral margins rounded; posterior margin convex medially; anterior margin almost straight in dorsal view, arcuate in frontal view. Prohypomera slightly impressed, with dense and fine punctation.

Scutellar shield small, nearly as wide as long, roundish, shagreened.

Elytra rather short and wide, 1.4 times as long as wide, subparallel-sided, slightly tapered posteriad; humeri distinctly prominent; glabrous; strial punctures indistinct, fine, elongate; each elytron with 12 shallowly impressed striae: striae 1 shortened, about 3.5 times as long as scutellum length, other striae complete; intervals wide, flat, densely covered with transverse microreticulation. Metathoracic wings not apparent.

Mesoventrite microreticulated, located at lower level than metaventrite. Metathorax with dense, small punctation and microreticulation. Metepisternum with subparallel lateral margins, slightly widened in anterior one-third. Metaventrite slightly convex; with anterior margin bisinuated; without excavation for reception of mesothoracic legs; with medial groove in posterior half; anterior intercoxal process rounded.

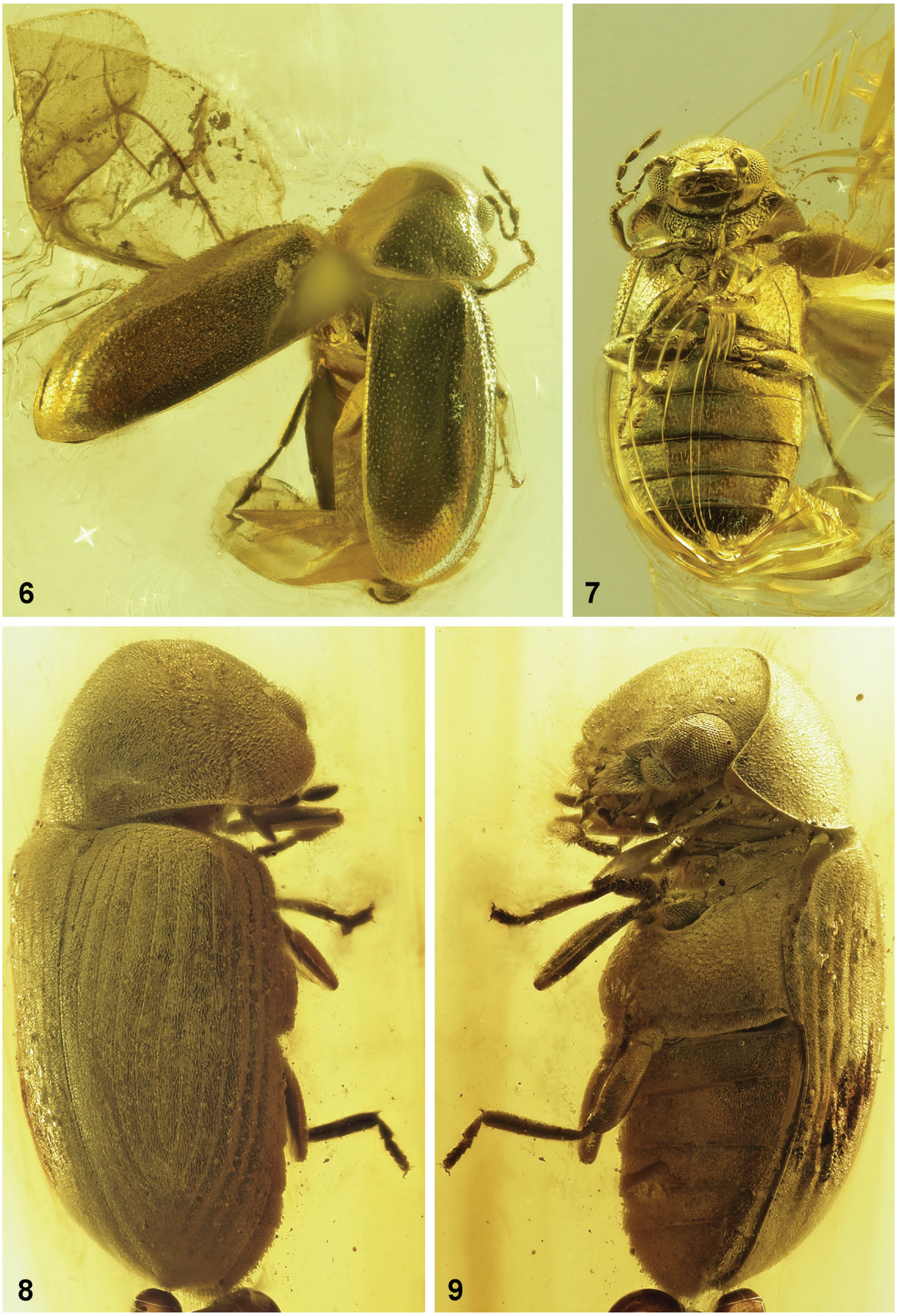


Figs 1–5. *Xyletinus lobanovi* **sp. n.**, holotype, general view and details of structure.

1 – habitus, ventro-lateral view; 2 – habitus, dorso-frontal view; 3 – antenna (reconstruction); 4 – details of elytra; 5 – details of head, ventro-lateral view (antennomere 11 is missing). s1 – elytral stria 1; sc – scuttelum; tlp – terminal labial palpomere; tmp – terminal maxillary palpomere.

Рис. 1–5. *Xyletinus lobanovi* **sp. n.**, голотип, общий вид и детали строения.

1 – габитус, вид снизу; 2 – габитус, вид сверху; 3 – усик (реконструкция); 4 – детали строения надкрылий; 5 – голова, вид снизу (последний членик усика отсутствует). s1 – первая бороздка надкрылий; sc – щиток; tlp – последний губной пальпомер; tmp – последний нижнечелюстной пальпомер.



Figs 6–9. Ptinidae in Baltic amber.
6–7 – *Ernobius nadravicus*: 6 – dorsal view, 7 – ventral view; 8–9 – *Xyletinus arturi*: 8 – dorso-lateral view; 9 – ventro-lateral view.
Рис. 6–9. Ptinidae в балтийском янтаре.
6–7 – *Ernobius nadravicus*: 6 – вид сверху, 7 – вид снизу; 8–9 – *Xyletinus arturi*: 8 – дорсолатерально; 9 – вентролатерально.

Legs slender, comparatively short, covered with fine punctures, apparently glabrous. Procoxae contiguous, meso- and metacoxae narrowly separated; metacoxae elongate, narrow, strongly transverse, about 4.4 times as wide as long. Femora flattened, slightly dilated medially, with deep ventral groove for tibia reception; meso- and metafemora not extending beyond elytral lateral margins. Tibiae straight, flattened, about as long as femora, with short apical spine. Tarsi pentamerous, short, shorter than tibia; tarsomere 1 longest, nearly as long as tarsomeres 2–3 combined. Tarsal claws small, simple, thickened basally, falcate, symmetrical.

Abdomen with five freely articulated, visible ventrites, without excavation for reception of metathoracic legs; ventrites finely and densely punctured and shagreened; ventrite 5 with widely rounded apical margin. Relative length ratios of ventrites 1–5 equal to 5 : 6 : 6 : 5 : 10 (medially).

Differential diagnosis. *Xyletinus* (s. str.) *lobanovi* **sp. n.** differs from described Baltic amber congeners (see key below) and extant congeners as follows: the body is small (2.7 mm long), rufous and short (elytra 1.4 times as long as wide); antennomeres 9–11 slightly longer than antennomeres 1–8; the pronotum widest in anterior one-third; elytra striate-punctate; each elytron with 12 distinct striae; the strial punctation fine; and elytral intervals flat and microreticulated.

This new extinct species resembles *X. carsteni* Háva et Zahradník, 2020 but differs from it in: (1) the dull, not shiny pronotum and elytra; (2) the uniformly rufous body and appendages; (3) the lesser body size. The new species is close to *X. arturi* Háva et Zahradník, 2019, but can be distinguished in the lesser body size, flat elytral intervals and the widest in anterior one-third pronotum.

Etymology. The specific epithet is a patronym dedicated to the memory of late Dr Andrei L. Lobanov, known Russian specialist in Cerambycidae and application of computer technologies in zoological research.

A key to species of *Xyletinus* described from Baltic amber

1. Elytral disc without distinct striae, each elytron with 2 lateral striae only. Antennomeres 2–10 serrate, triangular. Body length 4 mm .... *X. barsevskisi* Alekseev et Bukejs, 2019
– Elytral disc striate or striate-punctate, each elytron with 12 striae. Antennomere 2 not triangular, oblong 2
2. All elytral striae impunctate. Antennomeres 10–11 strongly transverse and dilated. Body length 3.1 mm .... *X. besseli* Alekseev et Bukejs, 2019
– At least two lateral elytral striae with distinct punctation 3
3. Elytra with two lateral striae consisting of distinct punctures. Antennomeres 10–11 elongate, longer than wide. Body length 2.47 mm .... *X. thienemanni* Alekseev et Bukejs, 2019
– Lateral and discal elytral striae with distinct punctation 4
4. Pronotum distinctly shining, finely punctured; legs lighter than body. Body length 3.1 mm .... *X. carsteni* Háva et Zahradník, 2020
– Pronotum not shining, densely pubescent or glabrous and dull; legs and body unicolorous 5
5. Elytral striae with large punctures (interstrial interval approximately 1.5–2 times as wide as diameter of one strial puncture). Body length 2.4 mm .... *X. michalskii* Háva et Zahradník, 2019
– Elytral striae with fine punctures (interstrial interval more than 4 times as wide as diameter of one strial puncture) 6
6. Lateral elytral intervals convex; dorsum densely pubescent (ground surface not clearly visible). Body length 4.2 mm .... *X. arturi* Háva et Zahradník, 2019
– All elytral intervals flat; pronotum without discernible pubescence, distinctly shagreened between granulation; antennomeres 9–11 longer than antennomeres 1–8. Body length 2.7 mm .... *X. lobanovi* **sp. n.**

Unfortunately, original descriptions of *Xyletinus* from Baltic amber are not equally complete, sometimes lacks important characters (e.g. the antennal structure of *X. arturi*, *X. michalskii* and *X. carsteni* is not clear) and therefore these species are not fully comparable in all aspects of the beetle morphology. Descriptions of amber beetles should be similar to descriptions of extant congeners in detailing whenever possible. However, not each new inclusion can provide irreproachably full set of visible systematically important characters. We hope that a new paleontological material and continued study of Baltic amber inclusions will fill gaps in descriptions of already known species in the future.

Additional fossil records of Ptinidae

Subfamily Ernobiinae Pic, 1912
Tribe Ernobiini Pic, 1912
Ernobius nadravicus Alekseev, 2014
(Figs 6, 7)

Material. One specimen with collection number 9122 (JDC), Baltic amber, Yantarny, Kaliningrad Region, Russia. Complete beetle included in transparent, yellow amber piece with dimensions of 46 × 25 × 7 mm. Syninclusions: many stellate Fagaceae trichomes. Body length of beetle is 1.8 mm, and preserved colouration is dark brown.

Subfamily Xyletininae Gistel, 1856
Tribe Xyletinini Gistel, 1856
Xyletinus arturi Háva et Zahradník, 2019
(Figs 8, 9)

Material. One specimen with collection number 9091 (JDC), Baltic amber, Yantarny, Kaliningrad Region, Russia. Complete beetle included in transparent, orange amber piece with dimensions of 18 × 13 × 3 mm. Syninclusions: some stellate Fagaceae trichomes, and many small gas vesicles. Body length of beetle is 3.6 mm, and preserved colouration is dark brown.

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