

## New and little-known Lepturinae from succinite (Coleoptera Cerambycidae)

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The article shows the results of the examination of some cerambycids preserved in Baltic and Rovno amber. *Vadoniocorymbia* n. subgen. is proposed for *Paracorymbia antiqua* Vitali, 2005, which differs from all congeners of the Recent in the convex under margin of the eyes (concave in the extant species). A female specimen of *Pedostrangalia* (s. str.) *pristina* Vitali, 2014 is examined, allowing emending the original description regarding pattern and elytral shape. *Pedostrangalia* (s. str.) *ostensackeni* n. sp. is described from Baltic amber. Two new species are described from Rovno amber are described: *Pedostrangalia* (s. str.) *rovnensis* n. sp. and *Anoplodera volyniensis* n. sp. Differential characters with fossil and extant species are provided.

Key words: Lepturini, fossil, systematics, palaeontology, new taxa

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### INTRODUCTION

The subfamily Lepturinae Latreille, 1802 (Coleoptera, Cerambycidae) is known as fossil inclusions since the beginning of the 20<sup>th</sup> century (Zang 1905). But, though Krebs (1910) reported the presence of extant genera in Baltic amber, subsequent descriptions of new fossil species occurred only one century later (Vitali 2004, 2005, 2009, 2011, 2014).

Currently, this subfamily consists of the following species, all included in Baltic amber: *Trichosieversia europaea* (Vitali, 2004), *Encyclopidonia punctatissima* Vitali, 2009 (Rhagiini), *Paracorymbia antiqua* Vitali, 2005, *Pedostrangalia pristina* Vitali, 2014, *Strangalia berendtiana* Zang, 1905 (Lepturini) and *Necydalis zangi* Vitali, 2011 (Necydalini).

In this paper, new observations on some already described species are reported. A new subgenus is introduced to accommodate *Paracorymbia antiqua* Vitali, 2005, characterised by the peculiar convex under margin of the eyes. Moreover, three new species are described, two out them included in Ukrainian succinite. They are the second and the third longhorn species from Rovno amber after the description of *Poliaenus europaeus* Vitali & Perkovsky, 2022.

### MATERIAL AND METHODS

Observations on the fossil were made using a stereomicroscope Antares Geminar 3 with 20-40x eyepieces equipped with a micrometer system. Photographs were kindly furnished by Carsten Gröhn (Linde,

Germany), Jonas Damzen (Vilnius, Lithuania) and Marius Veta (Palanga, Lithuania), sellers of the ambers. The reconstructions of the habitus were obtained with mixed traditional and computer graphic techniques.

### Cerambycidae Latreille, 1802

#### Lepturinae Latreille, 1802

#### Lepturini Latreille, 1802

#### *Paracorymbia* Miroshnikov, 1998

#### *Vadoniocorymbia* n. subgen. (monobasic)

#### *Paracorymbia antiqua* Vitali, 2005

(Fig. 1)



Fig. 1. *Paracorymbia* (*Vadoniocorymbia*) *antiqua* Vitali, 2005, Holotype, detail of the lower margin of the eye.

**Examined material.** Holotype, female, Baltic amber, ex coll. C. Gröhn, author's coll. FS3BS3 (Fig. 1); female, Baltic amber, ex coll. M. Veta; author's coll. FS73BS42.

#### Differential diagnosis

As remarked in the original description (Vitali 2015), *Paracorymbia antiqua* shows pronotum with apical furrow and truncate elytral apex like *Paracorymbia*. However, it differs from all congeners of the Recent in the convex under margin of the eyes (concave in the extant species). This archaic

character is almost present in the extant species of the genus *Vadonia* Mulsant, 1863, which however show rounded elytral apex and pronotum without apical collar.

Female genitalia (exposed in the holotype) are analogue to the ones of the extant *Vadonia* and *Paracorymbia*.

Due to its mixed characters, *P. antiqua* was interpreted as a quite archaic member of *Paracorymbia*, close to the *pallens*-group and as a probable link with *Vadonia*.

However, considering that this species can be inserted in neither extant subgenera (Mirosnikov 1998a, b), *Vadoniocorymbia* n. subgen. is here introduced to accommodate this fossil species.

***Pedostrangalia* Sokolov, 1897**

***Pedostrangalia* (s. str.) *pristina* Vitali, 2014**

(Figs 2-3)

**Examined material.** Holotype, male?, Baltic amber, coll. Christel & Hans Werner Hoffeins CCHH 643-2, Hamburg, Germany; female, Baltic amber, ex coll. J. Damzen JDC-11141, author's coll. FS86BS54 (Fig. 2).

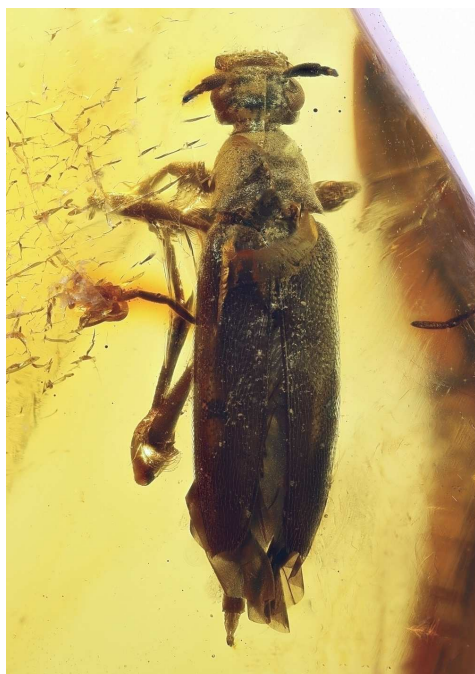


Fig. 2. *Pedostrangalia pristina* Vitali, 2014, female, dorsal side, coll. Vitali FS86BS54.

The beetle is preserved inside an elliptical piece of amber measuring about 39x18x6 mm. It lacks antennomeres III-IX of the

right antenna and III-VIII of the left one. Antennomeres IX-XI of the left antenna are located inverted suggesting that the beetle lost them before the fossilisation process, maybe trying to escape from the resin. Accordingly, elytra and hind wings are not perfectly closed and amber forms air bubbles around knees and under the sternum. The amber piece also contains a moth fly (Diptera Psychodidae) and numerous air bubbles but no stellate fagacean trichomes.

**Remarks**

Vitali (2014) described *Pedostrangalia pristina* on the basis of a supposed male, 8.3 mm long, lacking the left antenna except for a part of the scape, the dorsal part of the articles I-IV of the right antenna and the dorsal side of the right eye. The apical part of the elytra, the procoxae, and part of the tarsi were covered with milky turbidity preventing to observe their exact shape.

This second specimen (Fig. 2), a female 7.1 mm long, has been attributed to *P. pristina* on the basis of the particular elytral pattern.

The opportunity to examine another specimen preserved in a more observable position has allowed reevaluating and reinterpreting the exact pattern of this species and its variability (Fig. 3). What looked like some yellowish spots on the elytron of the holotype and was interpreted as a dented lateral pattern (Vitali 2014: Fig. 3) is now well visible in both specimens as a light lateral spot with a black dot in the middle. This spot is shortly oval in the holotype (Fig. 3, right elytron), while it is longer, reaching the humeral angle in this specimen (Fig. 3, left elytron). This kind of pattern reminds of some chromatic forms of *Vadonia unipunctata occidentalis* (Daniel, 1891), as the var. *xambeui* Pic (cf. Villiers 1978). If the colour variability of *P. pristina*

was analogous to that of *Vadonia unipunctata*, it is possible to hypothesise that *P. pristina* varied from completely melanistic specimens to light (possibly reddish) forms. These showed the same pattern of *P. riccardoi* Holzschuh, 1984.

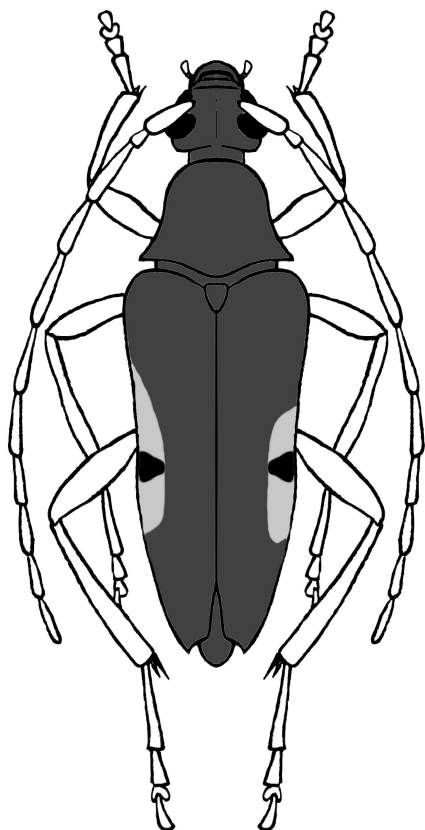


Fig. 3. *Podostrangalia pristina* Vitali, 2014, new reconstruction.

The elytral apex, perfectly observable in this specimen, looks identical to that of the holotype in lateral view but differs somewhat from the proposed reconstruction: it is not obliquely truncate but produced in a short spine at the marginal apex.

In conclusion, the new data make this fossil a peculiar species characterised by spined elytral apex and pronotum almost trapezoidal, with proportions similar to those of the European *P. revestita* (Linnaeus, 1767) but without lateral angles. Cheeks are also more developed than those of extant species.

For reasons of comparison, the proportions of antennomeres of the holotype are reported here on the basis of the pedicel: 3.8: 1.0: 5.0: 4.0: 5.5: 4.8: 4.5: 3.5: 3.3: 3.0: 3.5.

***Podostrangalia* (s. str.) *ostensackeni* n. sp.**  
(Figs. 4-6)

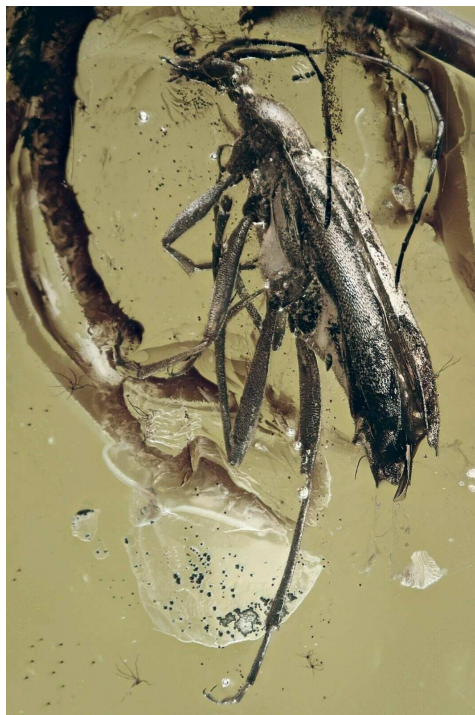


Fig. 4. *Podostrangalia ostensackeni* n. sp., Holotype, lateral view.





Fig. 5. *Pedostrangalia ostensackeni* n. sp., Holotype, dorsal view.

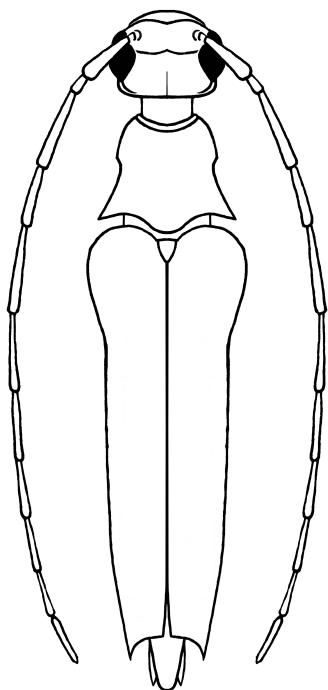


Fig. 6. *Pedostrangalia ostensackeni* n. sp., Holotype, reconstruction.

**Holotype.** Male, Baltic amber, ex coll. M. Veta 210415, author's coll. FS83BS51 (Fig. 4-5).

The beetle is preserved inside a circular piece of amber measuring ~20 mm in diameter. It lacks antennomeres VIII-XI and the body looks to have been subject to a strong deformation of the amber. The humeri look laminiform, the coxae look flattened and pulled backwards, while the abdomen is almost dislocated backwards. The amber piece contains one stellate fagacean trichome.

#### **Differential diagnosis**

The fossil has been identified as a member of the genus *Pedostrangalia* (s. str.) for the following combination of characters: prosternum convex, not forming an angle with the intercoxal process (Lepturini); cheeks developed; head with distinct angulated

temples; pronotum without apical collar and with acute basal angles; elytra not shortened, posteriorly convergent and not rounded at apex; antennae long and not strongly dentate. In addition, the pronotum is laterally winkled.

The peculiar character of the furrowed tarsi is not visible, but other genera show either strongly reduced temples or a pronotal collar.

With respect to *P. pristina*, *P. ostensackeni* n. sp. shows coloration entirely black, habitus more elongated, pronotum more cylindrical and with lateral angles, elytra 3.3 as long as wide at shoulders (2.6 in *P. pristina*) and more slender antennae, whose last antennomere is pedunculate or sub-articulated.

With respect to the congeners of the Recent, *P. ostensackeni* sp. n. seems to show most affinity with the Caucasian *P. tokatensis* Sama, 1996, which is characterised by analogous habitus and an atypical furrow behind the posterior margin of the eyes (unnoticed in the original description). The fossil differs in the pronotum laterally toothed, the longer elytra spines and (possibly) the black body colour. *P. ostensackeni* sp. n. reminds also of some *Neosphenalia*, e.g., the Manchurian *P. femoralis* (Motschulsky, 1860), which especially differs in the shorter temples.

### Description

Undetermined sex, probably male; length 7.5 mm. General habitus small, elongated; body seemingly black, ventral side covered with dense light pubescence.

Head relatively short; cheeks developed but relatively short; clypeus and forehead transverse; antennal tubercles widely separated, fairly elevated; eyes relatively close to the base of the mandibles, emarginate at

the upper side, uniformly convex at the under one, finely faceted; temples relatively long, inferiorly as long as cheeks, parallel-sided, abruptly converging backward, transversely furrowed behind the posterior margin of the eyes; neck as long as temples. Last (IV) maxillar palpomere widened and transversely truncate at apex; III palpomere widened at apex, three-fourth as long as IV; II palpomere elongated, as long as IV. Antennae 11-segmented, last antennomere seemingly pedunculate or sub-articulated, inserted between the eyes, hardly reaching the elytral apex, glabrous, extremely finely and densely punctured; scape feebly bowed; pedicle twice longer than broad, nearly one-fourth as long as scape; antennomere III more than one-fourth longer than scape; antennomere IV hardly longer than scape; antennomere V as long as III; following antennomeres decreasing in length, except for the last, about as long as VII; proportions according to the formula: 3.8: 1.0: 5.0: 4.0: 5.0: 3.8: 3.2: 2.8: 2.8: 2.7: 3.1.

Prothorax transverse, bell-shaped; sides with a stout angle before the middle; hind angles acute, embracing the elytral base; apex concave, deeply furrowed and bordered; base posteriorly lobed in the middle, finely grooved; disc feebly convex above, without longitudinal furrow, entirely covered with an extremely fine dense puncturing and indistinct pubescence. Scutellum small, elongate, forming an isosceles triangle.

Elytra long, 3.7 times as long as pronotum, 3.3 times as long as wide at the shoulders, flat above, feebly constricted at the sides after humeri, then nearly parallel-sided, apically tapered shortly before apex and obliquely emarginated at the apex; marginal apex acute; surface covered with a coarsely dense puncturing and an extremely fine, nearly invisible, short recumbent pubescence.

Ventral side convex, apparently impunctate and covered with a dense recumbent pubescence; prosternum nearly straight in lateral view.

Legs long; femora slightly club-shaped; tibiae linear, rectilinearly truncated at the apex, finely punctured and pubescent; apex of mesotibiae armed with two equal spines; apex of metatibiae with two unequal spines, the longest one being one-third as long as metatarsomere I. Metatarsi narrow, long, about one-fifth shorter than the metatibiae; metatarsomere I about as long as the following articles together; metatarsomere II one-half longer than III; metatarsomere III one-fourth as long as I, incised at the apex more than one-half of its length; metatarsomere IV minute; onychium as long as II (propor-

tions according to the formula: 4: 1.5: 1: ? : 1.5).

#### Etymology

This species is dedicated to Carl-Robert Osten-Sacken (1828-1906), eminent dipterologist of Baltic German origin and Russian consul in the United States for reminding the strength links among European peoples.

*Pedostrangalia* (*s. str.*) *rovnensis* n. sp.  
(Figs 7-12)

**Holotype.** Male, Rovno amber, ex coll. J. Damzen JDC-10269R, author's coll. FS86BS54 (Figs 7-9).

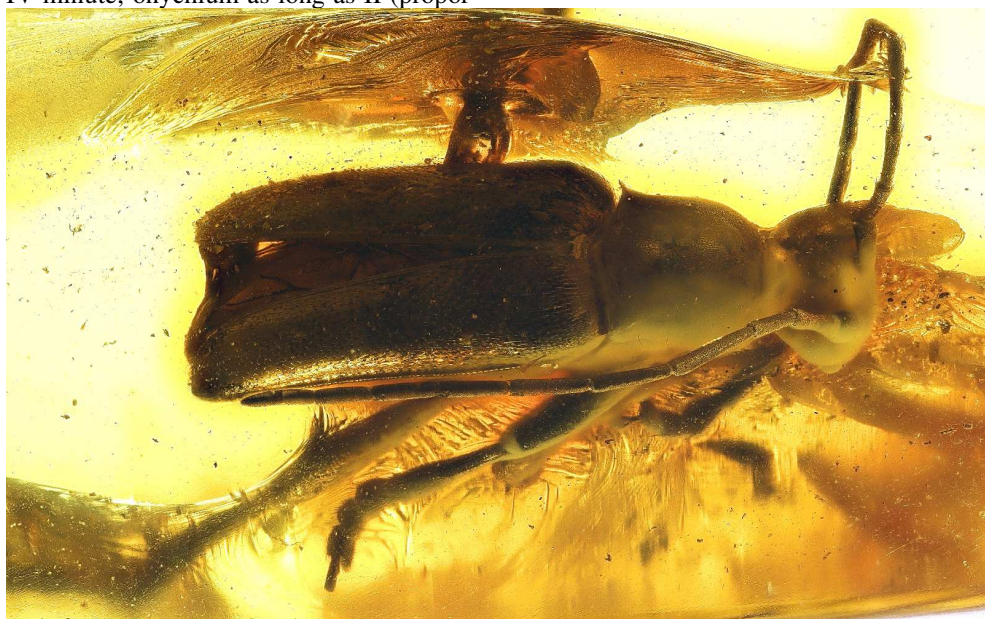


Fig. 7. *Pedostrangalia rovnensis* n. sp., male, Holotype, dorsal view.



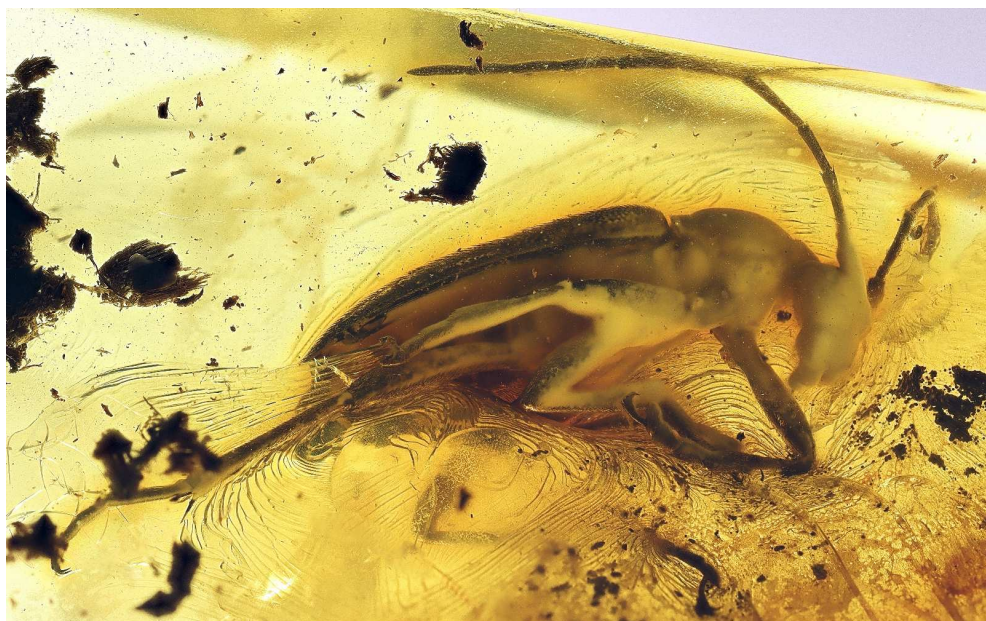


Fig. 8. *Pedostrangalia rovnensis* n. sp., male, Holotype, lateral view.

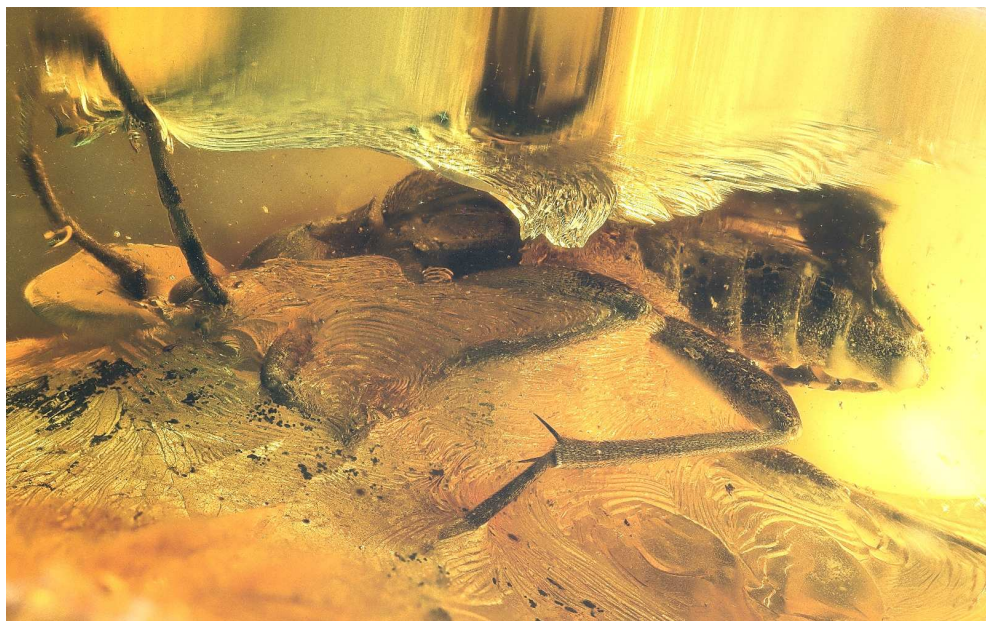


Fig. 9. *Pedostrangalia rovnensis* n. sp., male, Holotype, ventral view.





Fig. 10. *Pedostrangalia rovnensis* n. sp., female, Paratype, anterior view.



Fig. 11. *Pedostrangalia rovnensis* n. sp., female, Paratype, posterior view.

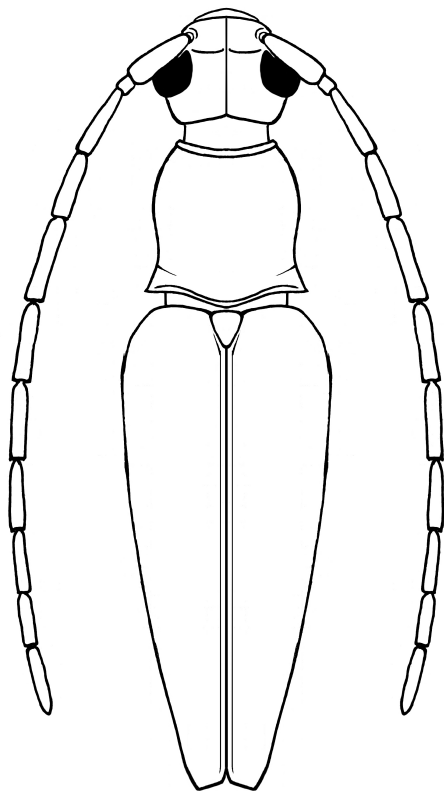


Fig. 12. *Podostrangalia rovnensis* n. sp. reconstruction.

The beetle is preserved inside a subtriangular piece of amber measuring about 48x28x12 mm. It is perfectly preserved, but the head and the right ventral side is covered with milky turbidity. The narrowly conical pygidium implies that this specimen is a male.

The amber piece contains numerous wood debris but seemingly, not further zoological inclusions.

**Paratype.** Female, Rovno amber, ex coll. J. Damzen JDC-11826R, author's coll. FS93BS61 (Figs 10-11).

The beetle is preserved inside a subtriangular piece of amber measuring about

32x28x10 mm. The specimen, which lays folded on itself with an open elytron, is perfectly preserved but mostly covered with milky turbidity, except for the right eye, the first four articles of the right antenna and some parts of the legs. The extended ovipositor implies that it is female.

The amber piece also contains a minute unidentified beetle, 1.2 mm long

### Differential diagnosis

Both fossils have been identified as members of the genus *Podostrangalia* (*s. str.*) for the following combination of characters: prosternum convex, not forming an angle with the intercoxal process (Lepturini); cheeks developed: head with distinct angulated temples; pronotum without apical collar and with acute basal angles; elytra not shortened, posteriorly convergent and not rounded at apex; antennae long and not strongly dentate.

As for the previous species, the peculiar character of the furrowed tarsi is not visible. In absence of this character, the species might be attributed to the Nearctic genus *Pygoleptura* Linsley & Chemsak, 1976, but male antennae are not dentate and female antennae are not short as in this genus. Other genera show either strongly reduced temples or a pronotal collar.

*Podostrangalia rovnensis* n. sp. is characterised by elytral apex obliquely truncate, without marginal spine, and pronotum very slightly elongated, strongly sinuous at sides and without lateral angles.

These characters are sufficient to separate it from the fossil *P. pristina* and *P. ostensackeni* n. sp., since both show spined elytral apex. Moreover, the pronotum is trapezoidal (*P. pristina*) or laterally winkled (*P. ostensackeni*). The coloration of *P. rovnensis* sp. n. is entirely black (like *P. ostensackeni*), but body and limbs are robust (like *P. pristina*).

With respect to the congeners of the Recent, *P. rovnensis* sp. n. should have looked somehow similar to the Anatolian *P. verticalis* (Pic, 1892) and the Balkan *P. verticalis* (German, 1822) but with much longer temples. Both species belong in fact to the subgenus *Neosphenalia* Löbl, 2010. Elytral apex and pronotal shape remind as well of the European *P. revestita*, especially the melanistic form *fulvilabris* Mulsant, but elytra are not carinate and the pronotum is without lateral angles as in this species and other ones of this genus. Possibly, *P. rovnensis* sp. n. shows more affinity with the Chinese *P. signifera* Holzschuh, 1999, but the pronotum is not so enlarged at base as in this species and the coloration is completely different.

### Description

Male: body length 8.3 mm. Female: Body length ~10 mm (difficult guessable due to the position). General habitus small, elongated, drop-shaped; body black.

Head relatively short; cheeks developed; clypeus and forehead transverse; antennal tubercles widely separated, fairly elevated; eyes far from the base of the mandibles, finely faceted; however, their shape not guessable; temples relatively long, a bit shorter than cheeks, parallel-sided, abruptly converging backward; neck almost long. Palps not observable. Antennae 11-segmented, inserted between the eyes, hardly reaching the elytral apex, finely pubescent, extremely finely and densely punctured; scape sub-linear; pedicel as long as broad or hardly elongate, less than one-fourth as long as scape; antennomere III slightly longer than scape; antennomere IV slightly shorter than scape; antennomere V the longest, nearly one-third longer than scape; antennomeres VI and VII sub-equal; following antennomeres decreasing in length, except for the last, about as long as

III; proportions according to the formula: 4.2: 1.0: 4.5: 4.0: 5.4: 4.8: 4.8: 4.2: 3.9: 3.5: 4.5.

Prothorax slightly elongate, bell-shaped, regularly enlarged posteriorly, hind angles short and acute, shortly embracing the elytral base; apex straight, finely grooved; sides without wrinkles; base posteriorly lobed in the middle, finely grooved; disc convex above, without longitudinal furrow, entirely covered with an extremely fine dense puncturing and a fine short recumbent pubescence. Scutellum small, forming an equilateral triangle.

Elytra relatively short, 2.15 times as long as wide at the shoulders, slightly more than 3 times as long as pronotum, flat above, nearly parallel-sided, feebly tapered posteriorly; apex almost transversely truncate, without marginal spine; surface covered with a coarsely fine puncturing and a fine short recumbent pubescence.

Ventral side convex; prosternum regularly convex in lateral view; other characters not guessable.

Legs relatively robust; femora slightly club-shaped; tibiae linear, rectilinearly truncated at the apex, finely punctured and densely pubescent; apex of metatibiae with two subequal spines, 0.4 as long as metatarsomere I. Metatarsi long, a bit shorter than metatibiae; metatarsomere I as long as the following articles together; metatarsomere II nearly one-half as long as I; metatarsomere III one-third shorter than II; onychium as long as III (proportions according to the formula: 7: 3: 2.5: ? : 2.5).

### Etymology

The specific epithet refers to the origin of this amber: Rovno (Ukraine).

### *Anoplodera* Mulsant, 1839

*Anoplodera volyniensis* n. sp.

(Fig. 13)



Fig. 13. *Anoplodera volyniensis* n. sp. Holotype

**Holotype.** male, Rovno amber, ex coll. J. Damzen JDC-9448R, author's coll. FS89BS57.

The insect is preserved inside a prismatic piece of amber measuring about 44x35x18 mm. It is perfectly preserved but the posterior part of the corps is covered with a fine milky turbidity.

The amber piece also contains minute zoological inclusions: a specimen of Chrysomelidae Alticini, another identified beetle (only elytra visible), one Hymenoptera Encyrtidae and several dipterans of different families (Cecidomyiidae, Tipulidae, etc.)

#### Differential diagnosis

The identification at the level of genus was rather complicated due to the position of the beetle, which did not allow observing exactly the pronotal shape, especially, the basal angles. The pronotum is convex, almost

cylindrical, evidently narrower than elytral base, while elytra are parallel-sided and rounded at apex. This character set reminds some basal genera like *Grammoptera*, *Alosterna*, *Anoplodera*, *Xestoleptura* and *Strangalepta*.

Finally, the fossil has been identified as a member of the genus *Anoplodera* on the basis of the following characters: 1) pronotal base without transversal furrow and 2) with a small indentation at each side; 3) antennae angulated externally from the fifth article; 4) elytral base straight. The first character excludes *Strangalepta*, second and third ones exclude *Grammoptera* and *Alosterna*, while the fourth one excludes *Xestoleptura*.

The antennal proportions (article III longer than IV and a bit shorter than V) correspond to the extant *Anoplodera*; however, this fossil does not perfectly fit with this



genus. In fact it shows long temples (as *Xestoleptura*) and a pubescence of semi-erect setae, such as several cerambycids in Baltic amber but no extant *Anoplodera*. Possibly, it belongs to a new undescribed (sub)genus, but I prefer waiting for further more observable specimens before proposing a new genus name.

### Description

Undetermined sex, probably male; length 8.3 mm. General habitus small, elongated.

Head relatively short; cheeks almost developed but; clypeus and forehead complanar; antennal tubercles widely separated, fairly elevated; eyes relatively close to the base of the mandibles, emarginate at the upper side, uniformly convex at the under one, finely faceted; temples long, as long as the hind eye-lobes, feebly converging backward; neck one-third as long as temples. Palpi not visible. Antennae 11-segmented, almost robust, inserted between the eyes, hardly reaching the elytral apex, covered with dense recumbent pubescence; scape sub-linear; pedicel scarcely longer than broad, about one-third as long as scape; antennomere III one-fourth longer than scape; antennomere IV one-tenth shorter than III; antennomere V the longest, twice as long as scape; following antennomeres decreasing in length, except for the last one (proportions according to the formula: 3.2: 1.0: 4.0: 3.8: 6.4: 5.8: 5.8: 5.4: 5.2: 4.2: 4.4).

Prothorax elongate, cylindrical, (hind angles rounded), evidently narrower than the elytral base; apex straight and finely grooved; base with a small indentation at each side, finely grooved; disc convex above, without longitudinal furrow, everywhere covered with a fine dense puncturing and some oblique strong black setae. Scutellum small, elongate, forming an isosceles triangle.

Elytra long, 6.5 times as long as pronotum, flat above, parallel-sided, widely rounded at apex; surface covered with a coarsely dense puncturing, a fine short recumbent pubescence and a sparse pubescence of oblique strong black setae.

Ventral side convex, covered with a dense recumbent short pubescence; prosternum feebly convex in lateral view; procoxal cavities posteriorly closed.

Legs relatively short; femora slightly club-shaped; tibiae linear, rectilinearly truncated at the apex, densely pubescent; apex of mesotibiae armed with two sub-equal spines; apex of metatibiae with two unequal spines, the longest one one-third as long as metatarsomere I; metatarsi long, their proportions not guessable.

### Etymology

The specific epithet refers to Volhynia, the historic region, today shared by Poland, Belarus and Ukraine, where Rovno amber is mined.

### DISCUSSION

After the present article, the fauna in succinite counts two more species of the genus *Pedostrangalia*, one in Baltic amber and the other one in Rovno amber.

As the previously described species (Vitali 2014), both new species belong to the nominotypical subgenus. This is the most archaic group since characterised by strongly developed temples.

The assumed affinity with extant taxa, *i.e.*, the Caucasian *P. tokatensis* and some Balkan-Anatolian species, confirms the thermophilic character of both palaeofaunas. Accordingly, the larval biology of the former species is related to oaks (Sama 1996),

whose trichomes are still well visible inside the amber including *P. ostensackeni* n. sp.

However, once again, Baltic fauna seems to have been related to extant mountain species (Schmidt & Michalik 2017, Vitali 2006, 2014, 2018, 2020, Vitali & Damgaard 2016).

From a palaeobiogeographical point of view, the presence in succinite of cerambycid genera still existent in Europe, contrarily to other numerous examples (Zang 1905, Alekseev & Vitali 2020, Vitali 2017, 2018, 2020, 2021, Vitali & Perkovsky 2022), does not contradict the hypotheses provided about succinite. As it was already hypothesized for *Nothorhina granulicollis* Zang, 1905 and the three *Pogonocherus* species (Vitali 2022), the dependence of *Pedostrangalia* on mesophilous mixed forests, which still survive in Europe, allowed the survival of this genus until today.

On the other side, the presence of the genus *Anoplodera* in Rovno amber could suggest a continental climate, not particularly warm and even montane, but every consideration is aleatory due to the fact that this species does not fit completely any known genus of the Recent.

However, the description of two further cerambycid species from Rovno amber supports the statement that Rovno and Baltic amber are somewhat distinct (Perkovsky et al. 2007). Nonetheless, the fact that the genus *Pedostrangalia* is present in both ambers suggest that their faunas were united in previous epochs.

## ACKNOWLEDGEMENTS

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