

## Description of *Cantharis navka* sp. n. (Coleoptera: Cantharidae), a third species of the genus from Rovno amber

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### ABSTRACT

A new extinct species of a soldier beetle, *Cantharis navka* sp. n. (Cantharidae: Cantharinae), from the late Eocene Rovno amber, is described. This is a third member of the genus registered in Rovno amber, compared to eleven species of *Cantharis* Linnaeus, 1758, known from Baltic amber. The possible use of the length ratio of antennomeres 2 and 3 for separation of the fossil species of *Cantharis* is briefly discussed.

KEYWORDS: Amber, Cantharidae, Cantharinae, Eocene, extinct species, fossil species, new species, paleoentomology, paleontology, Priabonian, Rovno amber, soldier beetle, taxonomy.

### INTRODUCTION

The soldier beetle genus *Cantharis* Linnaeus, 1758, belonging to the tribe Cantharini (Cantharinae), is widely distributed in the Holarctic realm, penetrating into the adjacent Neotropic and Oriental Regions, and accounting for over 250 extant species, with the greatest diversity reached in the Western Palaearctic Region (Delkeskamp 1977; Kazantsev & Brancucci 2007).

The amber record of *Cantharis* had until recently been confined to Baltic amber, from where the genus was first reported as *Cantharis* sp. (Helm 1896; Zang 1905; Hieke & Pietrzeniuk 1984), followed by the recent discoveries that brought the number of its members to eleven (Kuška 1992; Kazantsev 2018; Fanti & Pankowski 2020; Pankowski & Fanti 2025). In contrast, the Rovno amber fauna lists just eight Cantharidae species, four in each of Cantharinae and Malthininae (Kazantsev 2010; 2025; Kazantsev & Perkovsky 2014; 2020; Fanti & Pankowski 2023; Kazantsev *et al.* 2024; 2025; Fanti 2025). Two of the Rovno amber cantharines belong to genus *Cantharis* (Fanti & Pankowski 2023; Fanti 2025). Rovno amber is thought to be contemporaneous to Baltic amber yet originated much more southerly (on Volhynian Uplift), compared to the latter (Perkovsky *et al.* 2007, 2010; Mänd *et al.* 2018; Chemyreva *et al.* 2024; Eskov *et al.* 2026). The amber piece with the inclusion was collected supposedly at the Velyki Telkovichi

deposit (Varash District, Rovno Oblast, Ukraine). During the last twelve years Varash District yielded quite a lot inclusions never found in the better studied, nearby located Klesov deposit (reviewed by Fedotova *et al.* 2024; Perkovsky *et al.* 2024), e.g. a tribe of Dryinidae new to science (Olm *et al.* 2022), a moss genus new to science (Ignatov *et al.* 2025), first records of different insect and plant groups for Rovno amber: snakeflies (Perkovsky & Makarkin 2019), tiger beetles (Matalin *et al.* 2021), paussine beetles (Kirichenko-Babko & Perkovsky 2023), ship-timber beetles (Yamamoto *et al.* 2022), sawflies (Vilhelmsen *et al.* 2024). Also, the first *Sphagnum* ever found from Eocene ambers, was found in Velyki Telkovichi (Ignatov *et al.* 2019).

An opportunity to study new amber material from the Schmalhausen Institute of Zoology, Kiev, has yielded an inclusion with a *Cantharis* specimen that turned out to be a male of a new taxon, a third *Cantharis* species from Rovno amber.

#### MATERIALS AND METHODS

The studied specimen was found in a clear piece of raw amber 41×19×15 mm weighing 7.4 g. Such pieces of amber originated on trunks of amber trees (Perkovsky *et al.* 2012).

The holotype is housed in the Schmalhausen Institute of Zoology, Kiev (SIZK).

Photographs were taken using a Leica Z16 APO stereomicroscope equipped with a Leica DFC 450 camera.

#### TAXONOMY

Family Cantharidae Imhoff, 1856 (1815)

Subfamily Cantharinae Imhoff, 1856 (1815)

Tribe Cantharini Imhoff, 1856 (1815)

Genus *Cantharis* Linnaeus, 1758

Subgenus *Cantharis* Linnaeus, 1758

*Cantharis* Linnaeus, 1758: 400. Type species: *Cantharis fusca* Linnaeus, 1758: 401, subsequent designation by C.G. Thompson (1859).

*Oripa* Motschulsky, 1860: 398. Type species: *Oripa transmarina* Motschulsky, 1860: 400, subsequent designation by Delkeskamp (1977).

*Silotrachelus* Solsky, 1882: 31. Type species: *Silotrachelus semirufus* Solsky, 1882: 33, subsequent designation by Delkeskamp (1977).

*Telephorus* J.C. Schaeffer, 1766: pl. CXXIII. Type species: *Cantharis fusca* Linnaeus, 1758: 401, subsequent designation by Latreille (1810).

***Cantharis (Cantharis) navka*** Kazantsev & Perkovsky, sp. n.

Figs 1–4

**LSID:** urn:lsid:zoobank.org:act:F290EACF-9153-4494-9E8E-435D61FA2557.

**Etymology:** The name of the new species is a Ukrainian noun ‘navka’, a female forest spirit, who has no back, alluding to the condition of the inclusion in the amber piece.

**Diagnosis:** *Cantharis navka* sp. n. differs in following characters from the two *Cantharis* spp. from Rovno amber: from *C. groehni* Fanti, 2025 in the greater size (body length almost 1 cm versus 6 mm in *C. groehni*) and uniformly dark brown legs (Figs 1–3) versus apparently bicolored, with testaceous femurs and tibiae and dark tarsi, in *C. groehni*; from *C. michaeli* Fanti & Pankowski, 2023 in the relatively shorter antennomere 3, 1.3× longer than antennomere 2, versus 1.8× longer in *C. michaeli*, and the relative length of antennomeres 2 and 3 combined, ~1.3× longer than that of antennomere 4, versus 1.8× longer in *C. michaeli* (Figs 1, 2, 4). The new species is easily distinguishable from the similar *Cantharis* species from Baltic amber with filiform antennae by the distinctly shorter antennomere 3.

**Description: Male.** Dark brown to black (Figs 1–3). Body length, 9.6 mm; width (at humeri), ~2.3 mm.

*Head* transverse, large, densely rugulose. Eyes relatively small, spherical, interocular distance ~1.6× longer than eye diameter in dorsal view. Ultimate maxillary and labial palpomeres wide, noticeably wider than preceding palpomeres; ultimate maxillary palpomere ~2.3× longer than wide, widest at middle; ultimate labial palpomere ~1.5× longer than wide, widest in proximal 2/5. Clypeus convex, medially minutely emarginate. Cheeks short, conspicuously shorter than eye diameter. Antennae filiform, reaching over mid-elytra; scapus (antennomere 1) only slightly wider than antennomeres 2 and 3; antennomere 3 ca. 1.3× as long as antennomere 2; antennomeres 2 and 3 combined ca. 1.3× as long as antennomere 4 and subequal in length to antennomeres 5–11; antennal pubescence short, dense and sub-erect (Figs 1, 2, 4).

*Elytra* elongate, ~3× longer than wide at humeri, completely covering folded hind wings, with dense decumbent pubescence (Figs 1, 3).

*Legs* long and slender; femurs and tibiae narrow, subequal in length; tibiae slightly curved, distally with a pair of similar spurs; tarsomeres elongate, in the middle tarsus tarsomere 2 subequal in length to tarsomere 3 and ca. 1.7× shorter than tarsomere 1; outer claw of all tarsi with a distinct rounded apically tooth (Figs 1–3).

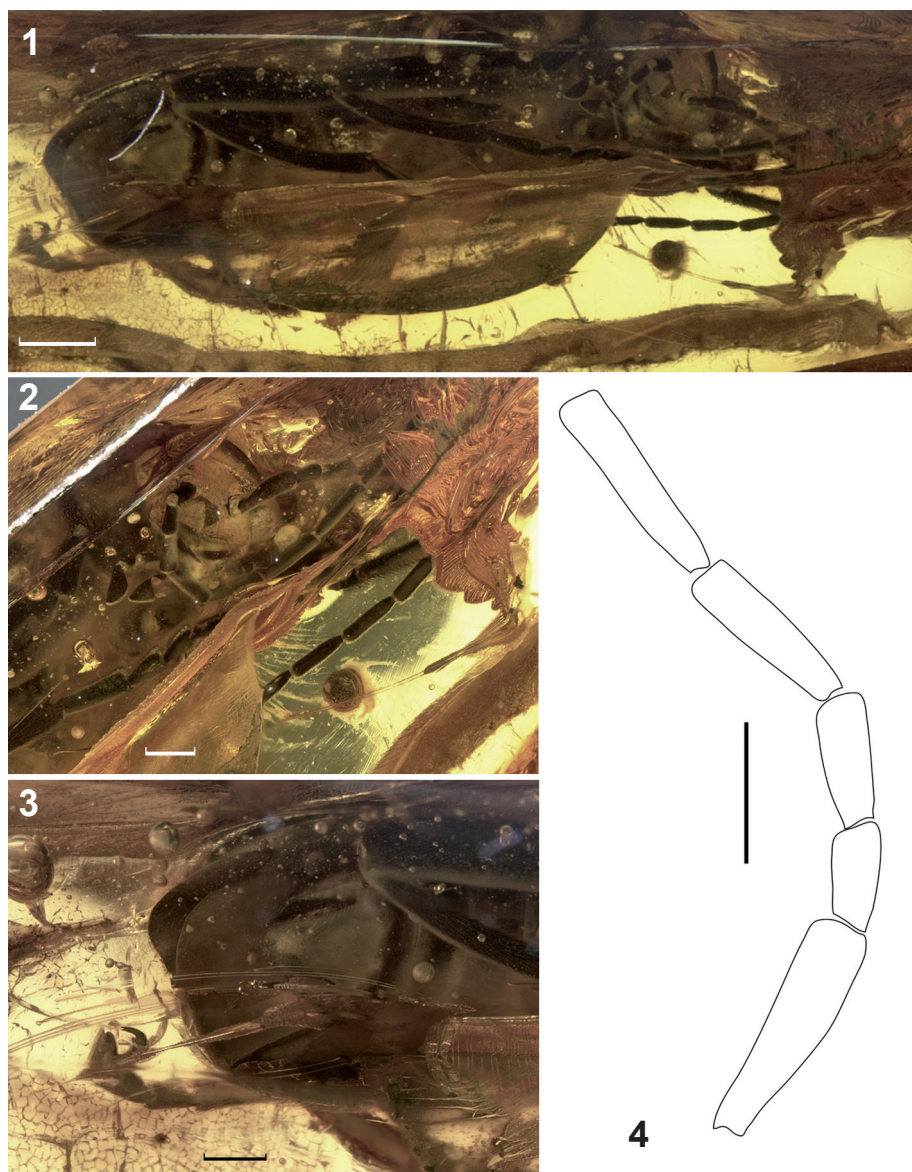
*Ultimate sternite* triangular, about as long as wide; penultimate sternite broadly concave at distal margin (Figs 1, 3).

**Female.** Unknown.

**Holotype:** ♂ SIZK VT-497, **Ukraine:** Rivne Region [Rovno Oblast], Varash District, Velyki Telkovichi; Rovno amber, Priabonian, Eocene.

**Syninclusions:** Numerous detritus pieces, stellate hairs.

**Remarks:** The layer of amber above the holotype of *Cantharis navka* sp. n. is completely destroyed, therefore no characters related to the upper side are presented in the description. The underside of the specimen, however, offers a reasonably good view of its antennae, legs, abdomen and head, including the palps, their morphology suggesting this is a male specimen of the genus *Cantharis*. Although the



**Figs 1–4.** *Cantharis (Cantharis) navka* sp. n., holotype male: (1) habitus, ventral view; (2) anterior part, ventral view; (3) posterior part, ventral view; (4) antennomeres 1–4. Scale bars: Fig. 1 = 1 mm, Figs 2–4 = 0.5 mm.

layer of amber above is absent, the outline of the elytra is easily traced, as well as their pubescence at the edges, which is indicated in the description. The line drawing of antennomeres 1–4 (Fig. 4) represents their actual shape and relative length defined by observation, whereas the obscuring properties of the amber piece and the position of the inclusion prevented from taking a photo of the antennae at a right angle.

The elongated second antennomere of the new species is somewhat reminiscent of the genus *Themus* Motschulsky, 1858, in which the antennomere 2 is often longer, or only slightly shorter than antennomere 3. However, its toothed outer claw and the short cheeks suggest it does not belong in *Themus*, but in *Cantharis* (Medvedev & Ryvkin 1992; Švihla 1992; Kazantsev 2001, 2013).

### DISCUSSION

Some of the *Cantharis* species known from Baltic amber have been described from females only (Fanti & Pankowski 2020; Pankowski 2023; Pankowski & Fanti 2025), regrettably also both Rovno amber species, *C. groehni* and *C. michaeli*, are known from females only (Fanti & Pankowski 2023; Fanti 2025), whereas the modern systematics is based on the distinguishing characters of males, while female characters are not widely used to separate species, especially closely related ones (e.g., Brancucci 1980; Švihla 1992, 1999; Kazantsev 2022). Hence, there arises a question, if it would be possible to compare already described species known only by females — with presumably new ones represented by males.

The structure of claws appears to be of little help, as the extant *Cantharis* species usually have, to a greater or lesser extent, a different claw structure in males and females (Švihla 1992; Kazantsev 2022). On the other hand, the analysis of the relative lengths of male antennomeres 2 and 3 shows that the antennomere 2 is always considerably shorter than the antennomere 3 in the extant European *Cantharis* species (Kuška 1995; Kazantsev 2022). Although the antennae and antennomeres tend to be shorter in females, the length ratio of antennomeres 2 and 3 remains roughly the same in both sexes. Therefore, it seems appropriate to use the difference in relative antennomere lengths, when it is considerable, as is in the case with *Cantharis navka* sp. n., to distinguish between males and females of different species. The new species appears to have characters of both *Cantharis* (the toothed male outer claw and short cheeks) and *Themus* (the insignificant length difference of antennomeres 2 and 3).

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## REFERENCES

- BRANCUCCI, M. 1980. Morphologie comparée, évolution et systématique des Cantharidae (Insecta: Coleoptera). *Entomologica Basiliensia* **5**: 215–388.
- CHEMYREVA, V.G., LEGALOV, A. & PERKOVSKY, E.E. 2024. A new genus of Ambositrininae (Hymenoptera, Diapriidae) from Rovno amber and remarks on the Eocene distribution of the subfamily. *Ecologica Montenegrina* **79**: 104–112.  
<https://doi.org/10.37828/em.2024.79.9>
- DELKESKAMP, K. 1977. Cantharidae. In: Wilcox, J.A. (Ed.), *Coleopterorum catalogus supplementa*. Pars 165, fasc. 1. 2<sup>nd</sup> ed. W. Junk, The Hague. 485 pp.
- FANTI, F. 2025. Three new soldier beetles from Baltic and Rovno amber. *Baltic Journal of Coleopterology* **25** (2): 207–216.  
[https://doi.org/110.59893/bjc.25\(2\).008](https://doi.org/110.59893/bjc.25(2).008)
- FANTI, F. & PANKOWSKI, M.K. 2020. Two new species of *Cantharis* Linnaeus, 1758 from Baltic amber. *Zootaxa* **4878** (3): 401–411.  
<https://doi.org/10.11646/zootaxa.4878.3.1>
- FANTI, F. & PANKOWSKI, M.K. 2023. The first species of *Cantharis* from Ukrainian Rovno amber (Coleoptera, Cantharidae). *Zootaxa* **5323** (2): 293–297.  
<https://doi.org/10.11646/zootaxa.5323.2.9>
- FEDOTOVA, Z.A., VASILENKO, D.V. & PERKOVSKY, E.E. 2024. *Vladimiretskia nathani* gen. et sp. nov. (Diptera, Cecidomyiidae: Porricondylinae, Asynaptini, Vladimiretskiana subtr. nov.) from Eocene Rovno amber with description of their eggs. *Ecologica Montenegrina* **72**: 146–157.  
<https://doi.org/10.37828/em.2024.72.14>
- HELM, O. 1896. Beiträge zur Kenntniss der Insekten des Bernstein. *Schriften der Naturforschenden Gesellschaft in Danzig, N.F.* **9** (1): 220–231.  
<https://www.biodiversitylibrary.org/item/50868#page/292>
- HIEKE, F. & PIETRZENIUK, E. 1984. Die Bernstein-Käfer des Museums für Naturkunde, Berlin (Insecta, Coleoptera). *Mitteilungen aus dem Zoologischen Museum in Berlin* **60** (2): 297–326.
- IGNATOV, M.S., LAMKOWSKI, P., IGNATOVA, E.A. & PERKOVSKY, E.E. 2019. Mosses from Rovno amber (Ukraine), 4. *Sphagnum heinrichsii*, a new moss species from Eocene. *Arctoa* **28**: 1–11.  
<https://doi.org/10.15298/arctoa.28.01>
- IGNATOV, M.S., VASILENKO, D.V., LEGALOV, A.A. & PERKOVSKY, E.E. 2025. Mosses from Rovno amber (Ukraine), 6. New genus of the family Pylaisiadelphaceae. *Ecologica Montenegrina* **89**: 87–97.  
<https://doi.org/10.37828/em.2025.89.4>
- IMHOFF, L. 1856. *Versuch einer Einführung in das Studium der Koleoptern. In zwei Theilen und einem, 25 Tafeln lithographirter Abbildungen nebst Text enthaltenden, Anhang.* Auf Kosten des Verfassers. Schweighauser, Basel, pp. i-xxxi + [1–2] + 1–114 + [1–2] + 1–272, 25 pls.
- KAZANTSEV, S.V. 2001. New taxa of soldier-beetles (Coleoptera, Cantharidae) from Central Asia and the Caucasus. *Zoological Journal [Zoologicheskij zhurnal]* **80** (9): 1076–1082. [in Russian with English summary; translated into English in *Entomological Review* **81** (8): 986–992].  
<https://www.researchgate.net/publication/296953770>
- KAZANTSEV, S.V. 2010. New *Malthodes* from the Rovno Amber (Insecta, Cantharidae, Coleoptera) (Upper Eocene of Ukraine). *Russian Entomological Journal* **19** (2): 105–107.  
<https://doi.org/10.15298/rusentj.19.2.02>
- KAZANTSEV, S.V. 2013. New taxa of Baltic amber soldier beetles (Insecta: Coleoptera: Cantharidae) with synonymic and taxonomic notes. *Russian Entomological Journal* **22** (4): 283–293.  
<https://doi.org/10.15298/rusentj.22.4.06>
- KAZANTSEV, S.V. 2018. New Baltic amber soldier beetles (Insecta, Coleoptera, Cantharidae, Cantharinae) from the Hoffeins collection, Hamburg. *Eurasian Entomological Journal* **17** (2): 146–152.  
<https://doi.org/10.15298/euroasentj.17.2.11>
- KAZANTSEV, S.V. 2022. Identification key to soldier beetles (Coleoptera, Cantharidae) of the European part of Russia and the Northern Caucasus. In: Bienkowski, A.O. (Ed.), *Digital identification keys to beetles of the European part of Russia. Issue 2.* Muhametov G.B., Livny. 110 pp. [in Russian].

- KAZANTSEV, S.V. 2025. A review of the fossil genus *Mimoplatycis* Kazantsev, 2013 (Coleoptera: Cantharidae: Malthiniinae). *Zootaxa* **5618** (2): 267–274.  
<https://doi.org/10.11646/zootaxa.5618.2.5>
- KAZANTSEV, S.V. & BRANCUCCI, M. 2007. Cantharidae. In: Löbl, I. & Smetana, A. (Eds), *Catalogue of Palaearctic Coleoptera. Vol. 4. Elateroidea – Derodontoidea – Bostrichoidea – Lymexyloidea – Cleroidea – Cucujoidea*. Apollo Books, Stenstrup, pp. 234–298.
- KAZANTSEV, S.V. & PERKOVSKY, E.E. 2014. A new *Malthodes* and some other interesting soldier beetles (Cantharidae, Coleoptera, Insecta) from Late Eocene Rovno amber. *Russian Entomological Journal* **23** (2): 113–116.  
<https://doi.org/10.15298/rusentj.23.2.03>
- KAZANTSEV, S.V. & PERKOVSKY, E.E. 2020. The first *Cacomorphocerus* species (Coleoptera, Cantharidae) from Rovno amber: a second species of the genus with 11-segmented antennae. *Zootaxa* **4751** (2): 395–400.  
<https://doi.org/10.11646/zootaxa.4751.2.14>
- KAZANTSEV, S.V., LEGALOV, A.A. & PERKOVSKY, E.E. 2024. First representative of the genus *Lycocerus* Gorham, 1889 (Coleoptera, Cantharidae) from Rovno amber. *Ecologica Montenegrina* **78**: 79–84. <https://doi.org/10.37828/em.2024.78.9>
- KAZANTSEV, S.V., LEGALOV, A.A. & PERKOVSKY, E.E. 2025. A new species of the genus *Sucinorhagonycha* Kuška, 1996 (Coleoptera: Cantharidae: Cantharinae) from late Eocene Rovno amber, with a taxonomic note. *Ecologica Montenegrina* **81**: 54–62.  
<https://doi.org/10.37828/em.2025.81.7>
- KIRICHENKO-BABKO, M. & PERKOVSKY, E.E. 2023. The first neotropical Carabidae (Coleoptera) from the Eocene of Ukraine: finding the first Old World ant nest beetle related to *Eohomopterus* in the Rovno amber. *Earth and Environmental Science Transactions of the Royal Society of Edinburgh* **114** (1–2): 115–124.  
<https://doi.org/10.1017/S1755691023000105>
- KUŠKA, A. 1992. Three new species of beetles (Coleoptera: Cantharidae, Anobiidae, Curculionidae) from the Baltic Amber. *Annals of the Upper Silesian Museum – Entomology* **3**: 107–113.
- KUŠKA, A. 1995. *Omomilki (Coleoptera, Cantharidae): Cantharinae i Silinae Polski*. Wydawnictwa Instytutu Systematyki i Evolucji Zwierząt Polskiej Akademii Nauk, Krakow. 201 pp.
- LATREILLE, P.A. 1810. *Considérations générales sur l'ordre naturel des animaux composant les classes des crustacés, des arachnides, et des insectes; avec un tableau méthodique de leurs genres, disposés en familles*. F. Schoell, Paris. 444 pp.  
<https://www.biodiversitylibrary.org/item/80027>
- LINNAEUS, C. 1758. *Systema naturae, sive regna naturae systematice proposita, per classes ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Tomus I. Editio decima, reformata*. Laurentii Salvii, Holmiae, [iv] + 823 + [1] pp.  
<https://www.biodiversitylibrary.org/item/10277>
- MÄND, K., MUEHLENBACHS, K., MCKELLAR, R.C., WOLFE, A.P. & KONHAUSER, K.O. 2018. Distinct origins for Rovno and Baltic ambers: Evidence from carbon and hydrogen stable isotopes. *Palaeoecology, Palaeoclimatology, Palaeoecology* **505**: 265–273.  
<https://doi.org/10.1016/j.palaeo.2018.06.004>
- MATALIN, A.V., PERKOVSKY, E.E. & VASILENKO, D.V. 2021. First record of tiger beetles (Coleoptera, Cicindelidae) from Rovno amber with the description of a new genus and species. *Zootaxa* **5016** (2): 243–256.  
<https://doi.org/10.11646/zootaxa.5016.2.5>
- MEDVEDEV, L.N. & RYVKIN, A.B. 1992. 46. Cantharidae. In: Ler, P.A. (Ed.), *Key to the insects of the Far East of the USSR*. Vol. 3, Part 2. Nauka, St. Petersburg, pp. 29–40. [in Russian]
- MOTSCHULSKY, V. 1858. Entomologie spéciale. Insectes du Japon. *Etudes entomologiques* **6** (1857): 25–41, 1 pl.
- MOTSCHULSKY, V.I. 1860 [1859]. Coléoptères nouveaux de la Californie. *Bulletin de la Société Impériale des Naturalistes de Moscou* **32** (4): 357–410.  
<https://www.biodiversitylibrary.org/item/107037#page/369>
- OLMI, M., GUGLIELMINO, A., VASILENKO, D.V. & PERKOVSKY, E.E. 2022. Discovery of the first apterous pincer wasp from amber, with description of a new tribe, genus and species of Apodryiniinae (Hymenoptera, Dryinidae). *Zootaxa* **5162** (1): 54–66.  
<https://doi.org/10.11646/zootaxa.5162.1.3>

- PANKOWSKI, M.G. 2023. Two new species of soldier beetles (Coleoptera: Cantharidae) from Eocene Baltic amber, including one with a rare type of antennae. *Palaeoentomology* **6** (4): 416–423. <https://doi.org/10.11646/palaeoentomology.6.4.12>
- PANKOWSKI, M.G. & FANTI, F. 2025. Four new species of Eocene soldier beetles (Coleoptera: Cantharidae) from Rovno and Baltic ambers. *Historical Biology* **38** (2): 407–416. <https://doi.org/10.1080/08912963.2025.2506002>
- PERKOVSKY, E.E. & MAKARKIN, V.N. 2019. A new species of *Succinoraphidia* Aspöck & Aspöck, 2004 (Raphidioptera: Raphidiidae) from the late Eocene Rovno amber, with venation characteristics of the genus. *Zootaxa* **4576** (3): 570–580. <https://doi.org/10.11646/zootaxa.4576.3.9>
- PERKOVSKY, E.E., RASNITSYN, A.P., VLASKIN, A.P. & RASNITSYN, S.P. 2012. Contribution to the study of the structure of amber forest communities based on analysis of syninclusions in the Rovno Amber (Late Eocene of Ukraine). *Paleontological Journal* **46** (3): 293–301. <https://doi.org/10.1134/S0031030112030136>
- PERKOVSKY, E.E., RASNITSYN, A.P., VLASKIN, A.P. & TARASCHUK, M.V. 2007. A comparative analysis of the Baltic and Rovno amber arthropod faunas: representative samples. *African Invertebrates* **48** (1): 229–245. <https://archive.org/details/ejc84578>
- PERKOVSKY, E.E., ZOSIMOVICH, V.YU. & VLASKIN, A.P. 2010. Rovno amber. In: Penney, D. (Ed.), *Biodiversity of fossils in amber from the major world deposits*. Siri Scientific Press, Rochdale, Greater Manchester, pp. 116–136.
- PERKOVSKY, E.E., LEGALOV, A.A. & HÁVA, J. 2024. *Trinodes puetzi* Háva et Prokop (Coleoptera, Dermestidae, Trinodinae) from Klesov: first record for the Ukrainian Eocene. *Ecologica Montenegrina* **73**: 428–433. <https://doi.org/10.37828/em.2024.73.28>
- SCHAEFFER, I.C. 1766. *Elementa entomologica. CXXXV tabulae aere excusae floridisque coloribus distinctae*. Weiss, Ratisbonae. [9] + 135 pp., 135 pls.
- SOLSKY, S.M. 1882 [1881]. New or little known coleopterans from borderlands of the Russian Empire and adjacent countries (continuation). *Trudy Russkago Entomologicheskago Obshchestva* **13**: 31–37. <https://www.biodiversitylibrary.org/item/185672#page/129>
- ŠVIHLA, V. 1992. Revision of the Subfam. Cantharinae without *Podabrus* (Coleoptera: Cantharidae) from Soviet Central Asia, Afghanistan and Chinese Turkestan. *Entomologica Basiliensia* **15**: 279–332.
- ŠVIHLA, V. 1999. Contribution to the knowledge of the genus *Cantharis* L. and related genera from Turkey and adjacent regions (Coleoptera: Cantharidae). *Entomologica Basiliensia* **21**: 135–170.
- THOMSON, J. 1857. Table alphabétique des Insectes et animaux analogues connus et désignés par Aristote, avec leurs noms latins selon l'ancien traducteur, Gaza et Scaliger. *Archives entomologiques ou recueil contenant des illustrations d'Insectes nouveaux ou rares* **1**: 93–104.
- VILHELMSSEN, L., PERKOVSKY, E.E. & JENKINS SHAW, J. 2024. Rogue sawflies: Rare late Eocene amber fossils provide new calibration points for dating the evolution of Tenthredinoidea (Insecta: Hymenoptera). *Journal of Systematic Palaeontology* **22** (1): Art. 2348774. <https://doi.org/10.1080/14772019.2024.2348774>
- YAMAMOTO, S., NAZARENKO, V.YU., VASILENKO, D.V. & PERKOVSKY, E.E. 2022. First fossil species of ship-timber beetles (Coleoptera: Lymexylidae) from Eocene Rovno amber (Ukraine). *Fossil Record* **25**: 65–74. <https://doi.org/10.3897/fr.25.81054>
- ZANG, R. 1905. Coleoptera Longicornia aus der Berendtschen Bernsteinsammlung. *Sitzungsberichte der Gesellschaft naturforschender Freunde zu Berlin* **1905**: 232–245. [https://www.zobodat.at/pdf/Sitzber-Ges-Naturforsch-Freunde-Berlin\\_1905\\_0232-0245.pdf](https://www.zobodat.at/pdf/Sitzber-Ges-Naturforsch-Freunde-Berlin_1905_0232-0245.pdf)