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Diochus balticus sp. nov., the second species of the genus from Baltic amber (Coleoptera: Staphylinidae: Staphylininae)

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Abstract. A new extinct species of the genus *Diochus* Erichson, 1839: *D. balticus* sp. nov. from Baltic amber is described, illustrated and distinguished from related species.

INTRODUCTION

The rove beetle genus *Diochus* Erichson, 1839 is a worldwide distributed group of about 100 described species and is included in the tribe Diochini Casey, together with the Neotropical genus *Antarctothius* Coiffait & Saiz, 1970 (Herman 2001, Żyła & Solodovnikov 2019). Extant species of *Diochus* from various regions have been revised in the last decades (Assing 2003, Irmler 2017, Huang et al. 2024a, b, c, 2025a, b).

The only extinct species, *Diochus electrus* Chatzimanolis & Engel, 2011 was described from Baltic amber. Baltic amber is generally dated as Eocene to Oligocene (55.8-22.9 Ma) and a more precise age of its various amber deposits is the still object of discussion (Bogri et al. 2018, Kypke & Solodovnikov 2020).

The aim of this paper is to describe an additional species of *Diochus* based on a well preserved specimen in Baltic amber.

MATERIAL AND METHODS

The fossil specimen was studied under a binocular stereomicroscope MBS 10 and Motic BA 410E-T compound microscope. Images were taken with a Canon EOS 700D camera in combination with a Canon MP-E65 1-5x macro lens or using the same camera mounted on a Motic BA 410E-T compound microscope under diffused reflected light. In some cases the amber pieces were covered with a layer of clove oil before taking pictures, which improved visibility of the specimen. Resulting images were focus stacked using Zerene Stacker and then postprocessed in Paint.Net, Paint, XnView and Live Photo Gallery. The piece of amber was placed in a transparent plastic bag together with relevant identification labels.

The following abbreviation is used to indicate the depository of specimens:
JJRC private collection Jiří Janák, Rtyně nad Bílinou, Czech Republic.

The terms and abbreviations are used as follows:

ANL Length of antennae.
ANT Length of antennomere.
BL Body length (from anterior margin of epistoma to the end of abdomen).
FL Forebody length (from anterior margin of epistoma to the end of elytra).
HL Head length (from anterior margin of epistoma to head posterior margin).
HW Head width (maximal width of head, included eyes).
EyL Length of eyes (longitudinal length in dorsal view).
TL Length of tempora (longitudinal length in dorsal view).
PL Pronotum length (from anterior to posterior margin along midline).
PW Pronotum width (maximal width of pronotum).
EL Elytral length (from anterior margin at shoulders to posterior margin).
EW Elytral width (maximal, combined width of both elytra).
SL Sutural length (from posterior margin of scutellum to posterior internal margin along suture).

TAXONOMY

Diochus electrus Chatzimanolis & Engel, 2011

Type material (not examined). Holotype (♀): "Baltic, middle Eocene (Lutetian), blaue Erde, Northern Europe" (Fossil Insect Collection, Division of Entomology, University of Kansas, Natural History Museum, Lawrence, U.S.A.).

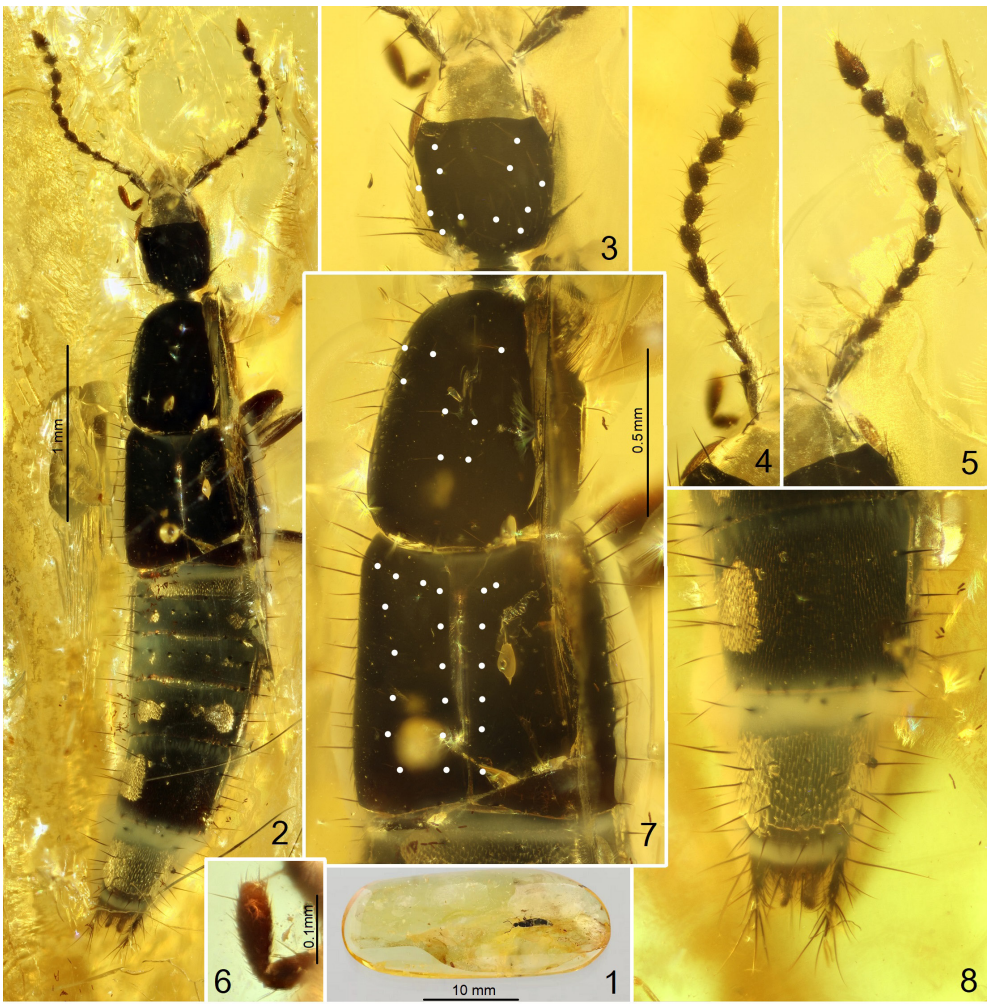
Diagnosis. The following diagnosis was published by the authors: *Diochus electrus* can be distinguished from other western Palaearctic species of the genus by the differences in the relative proportion of elytra to pronotum (elytra longer than pronotum in *D. electrus*; shorter than elytra in other species) and the proportions of the head, head much more elongate in the extant species than in *D. electrus*).

Diochus balticus sp. nov.

(Figs. 1-8)

Type material. Holotype (♀): Baltic region, Yantarny mine, Kaliningrad, Russia, in a transparent plastic bag together with a red identification label: "Diochus balticus sp. nov., J. Janák det. 2025", (JJRC). Oval piece of light yellow transparent amber, size: approx. 11 x 28 x 4 mm (Fig. 1).

Diagnosis. *D. balticus* sp. nov. differs from the only described extinct and all extant species by combination of following characters: head rounded rectangular with parallel temples, with two paired punctures in middle area, without additional punctures between them; discal series on pronotum consisting of 3 punctures, distance between punctures of middle pair of discal series equal to distance between posterior punctures of discal series; pronotum widened posteriorly; elytra longer than pronotum; antenna long, with most antennomeres (1-9) longer than wide, all macrosetae long.



Figs. 1-8. *Diochus balticus* sp. nov.: 1- amber piece with inclusion; 2- habitus; 3- head, 4- left antenna; 5- right antenna; 6- maxillary palpus; 7- pronotum and elytra; 8- tip of abdomen. Scales 10 mm: 1; 1 mm: 2; 0.5 mm: 3-5, 7-8; 0.1 mm: 6. Macrosetae in dark areas highlighted by white circles.

Preservation. Well preserved. Anterior part of head and partly the right part of body, most parts of legs and entire ventral side of body not visible due to a cloud of microbubbles.

Description. Body long, narrowed anteriorly and posteriorly, medium-sized (Fig. 2). Body black to dark brown, posterior parts of abdominal segments lighter, reddish brown. Legs yellowish brown. Antennae unicolored dark brown, legs and maxillary reddish brown.

Measurements. BL = 4.48 mm, FL = 2.23 mm, HL = 0.63 mm, HW = 0.47 mm, EyL = 0.17 mm, TL = 0.34 mm, ANL = 1.24 mm, ANT1 = 0.17 mm, ANT2 = 0.13 mm, ANT3 = 0.13 mm, ANT4 = 0.10 mm, ANT 11 = 0.15 mm, PL = 0.79 mm, PW = 0.58 mm, EL = 0.84 mm, EW = 0.73 mm, SL = 0.62 mm.

Head (Fig 3). Oblong, 1.32 times as long as wide. Tempora almost straight and almost parallel, posterior angles distinct but obtusely rounded. Dorsal surface shiny, bearing distinct and transverse microstriae, also with coarse and sparse punctures. Head with 5−7 irregular punctures scattered around each eye and numerous smaller punctures on deflexed portion of temple and near posterior margin. Each side of cranium with characteristic punctures: one frontal puncture on frontal region, two anterolateral punctures near antennal insertion, three lateral punctures near dorsal margin of eye, with temporal puncture and occipital puncture near basal margin; disc surface bearing two paired punctures in middle area, between them without additional punctures. Frontal furrows and anteocular furrows absent. Eye medium-sized, almost not protruding laterad, longitudinal diameter about as long as half the length of tempora (eye: tempora = 0.51). Distance between antennal insertions (0.20 mm) twice as long as distance from antenna to eye (0.10 mm).

Antennae (Figs. 4-5). Scape rod-shaped, slightly widened apically, markedly shorter than two subsequent antennomeres combined; antennomere 2 elongate, about twice as long as wide, antennomere 3 slightly longer than 2; antennomere 4 about twice as long as wide, antennomere 4 to 10 gradually shortened, antennomeres 5 to 9 longer than wide, antennomere 10 about as long as wide, antennomere 11 distinctly longer than 10.

Mouthparts (Fig. 6). Labrum elongate, anterior part and mandibles not visible. Maxillary palpomere 3 elongate, covered by dense short setae (Fig. 6), palpomere 4 short and narrow, about third as long as palpomere 3.

Neck (Figs. 2-3). Cylindrical, shiny, about one third of head width or slightly less.

Prothorax (Fig. 7). Pronotum distinctly elongate (PL to PW ratio 1.35), longer and wider than head. Anterior region near anterior angles deflexed, pronotum widest at basal 1/3, anterior and posterior angles broadly rounded. Dorsal surface glossy, without any microsculpture. Each side of longitudinal midline with one row of discal punctures composed of 3 large punctures and 2 additional punctures outside of puncture row, 15 punctures scattered near each margin (including anterior, lateral and posterior margins). Distance between anterior pair of discal punctures much larger than distance between middle pair of discal punctures. Distance between posterior pair of discal punctures equal to distance between punctures in middle pair. Distance between anterior and middle discal punctures much larger then distance between middle and posterior punctures.

Pterothorax (Fig. 7). Mesoscutellum triangular, surface shiny, impunctate.

Elytra (Fig. 7). Elytra slightly elongate (EL to EW ratio 1.15), longer (ratio 1.06) and wider (ratio 1.26) than pronotum. Humeri slightly developed, lateral margins divergent posteriorly, posterior margin of each elytron obliquely truncate towards suture. Dorsal surface shiny, flattened, without microsculpture; each elytron with row of 6 punctures along suture, row of 6 punctures in median and 2 other punctures at base between these rows, also with additional lateral row of 11 punctures with very long protruding setae on deflexed portion. Deflexed portion with row of short setae oriented obliquely posteriad.

Legs (Fig. 2) only partly visible. Profemora wider than meso- and metafemora.

Abdomen (Figs. 7-8). Broadest at segment IV. Tergites III–VII with dense short brown pubescence, apical margin with row of dense, longer and darker setae, also with transverse row of sparse, darker and much longer setae on middle part of tergites III–VI. Tergites III–

VII with a basal impression near anterior margin; all abdominal tergites with surface shiny, bearing fine transverse or polygonal mesh, with dense punctures. Posterior margin of tergite VII with distinct palisade fringe.

Male. Unknown.

Female (Fig. 8). Head with shallow impression on frons, without elevation between eyes. Tergite X rounded posteriorly, possessing long setae, tergite IX much longer than tergite X, with numerous long setae. Valvifer (sternite IX) widened posteriorly, with dense and short setae.

Differential diagnosis and discussion. *D. balticus* sp. nov. differs from all already revised extant East Palaearctic, Oriental, and Australian *Diochus*, all but one Western Palaearctic *Diochus* and all but two Afrotropical species by the number (three pairs) and arrangement of discal series of punctures on pronotum, which are not convergent posteriorly and have the middle and posterior pair of punctures equidistant. A similar arrangement of discal puncture is found in the Western Palaearctic species *D. libanoticus* Fagel, 1966 and also South African *D. astutus* Casey, 1906 and *D. bicolor* Scheerpeltz, 1974. *Diochus libanoticus* Fagel, 1966 differs from the new species by the shape of the pronotum, which is widest anteriorly (Assing 2003: Fig. 16). *Diochus astutus* Casey, 1906 differs by the much shorter antennae and rounded rectangular pronotum. *Diochus bicolor* Scheerpeltz, 1974 differs by the bicolored elytra. Several Neotropical *Diochus* possess a similar arrangement of the pronotal discal series but differ in the following combination of characters: head on disc with more punctures, pronotum not or less widened posteriorly. The only described extinct *Diochu*s, *D. electrus,* differs from the new species by the smaller body (BL = 3.5 mm), ovoid, markedly posteriorly widened head, by elytra longer (ratio = 1.17) and wider (ratio = 1.37) in relation to the pronotum, and by the shorter middle antennomeres. Neither the discal series on pronotum nor the row of punctures on elytra are mentioned in the description of *D. electrus*. Both these characters are important in *Diochus* taxonomy and probably were not visible or preserved in the fossil.

Etymology. The name of the species refers to the Baltic amber.

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REFERENCES

Assing V. 2003: A revision of the Western Palaearctic species of *Diochus* (Coleoptera: Staphylinidae: Staphylininae: Diochini). *Entomological Problems* 33: 111-118.

Bogri A., Solodovnikov A. & Żyła D. 2018: Baltic amber impact on historical biogeography and palaeoclimate research: oriental rove beetle *Dysanabatium* found in the Eocene of Europe (Coleoptera, Staphylinidae, Paederinae). *Papers in Palaeontology* 4: 433-452.

Herman L. H. 2001: Catalog of the Staphylinidae (Insecta: Coleoptera). 1758 to the End of the Second Millennium. V. Staphylinine Group (continued) Staphylininae: Diochini, Maorothiini, Othiini, Platyprosopini, Staphylinini (Amblyopinina, Anisolinina, Hyptiomina, Philonthina). *Bulletin of the American Museum of Natural History* 265: 2441-3020.

Huang T., Zhou Y.-L., Janák J. & Zhou H.-Z. 2024a: Four new species and a key to Australian species of the genus *Diochus* Erichson (Coleoptera: Staphylinidae, Staphylininae, Diochini). *Zootaxa* 5512(3): 343-372.
Huang T., Janák J. & Zhou H.-Z. 2024b: Taxonomy of the genus *Diochus* Erichson (Coleoptera: Staphylinidae, Staphylininae, Diochini) of Papua New Guinea, Vanuatu and Solomon Islands. *Zootaxa* 5519(1): 103-118.
Huang T., Janák J. & Zhou H.-Z. 2024c: A revision of the genus *Diochus* Erichson (Coleoptera: Staphylinidae, Staphylininae, Diochini) from India, Nepal and Pakistan. *Zootaxa* 5538(6): 501-545.
Huang T., Janák J. & Zhou H.-Z. 2025a: Revision of the genus *Diochus* Erichson (Coleoptera: Staphylinidae, Staphylininae, Diochini) from Thailand and Myanmar. *Zootaxa* 5620(1): 105-142.
Huang T., Janák J. & Zhou H.-Z. 2025b: Revision of the genus *Diochus* Erichson (Coleoptera: Staphylinidae, Staphylininae, Diochini) from Indonesia, Malaysia and Singapore. *Zootaxa* 5632(3): 441-479.
Irmler U. 2017: A review of the Neotropical genus *Diochus* Erichson, 1840 (Coleoptera: Staphylinidae: Staphylininae). *Contributions to Entomology: Beiträge zur Entomologie* 67(1): 1-62.
Kypke J. L. & Solodovnikov A. 2020: Every cloud has a silver lining: X-ray micro-CT reveals *Orsunius* rove beetle in Rovno amber from a specimen inaccessible to light microscopy. *Historical Biology* 32(7): 940-950.
Żyła D. & Solodovnikov A. 2019: Multilocus phylogeny defines a new classification of Staphylininae (Coleoptera, Staphylinidae), a rove beetle group with high lineage diversity. *Systematic Entomology* 2019 (12382): 1-14.

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