

Four new species and new records of Paederinae from Baltic and Ukrainian (Rovno) amber (Coleoptera: Staphylinidae)

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Taxonomy, Coleoptera, Staphylinidae, Paederinae, new species, new records, fossil, amber, *Dibelonetes*, *Dysanabatium*, *Nazeris*, *Orsunius*, Baltic amber, Rovno amber

Abstract. A new extinct species of the genus *Dibelonetes* R. Sahlberg, 1847: *D. antecessor* sp. nov. from Baltic amber and three new extinct species of the genus *Nazeris* Fauvel, 1873: *N. antiquus* sp. nov. from Baltic amber, *N. damzeni* sp. nov. and *N. electrus* sp. nov. from Ukrainian (Rovno) amber are described, illustrated and distinguished from related species. New records of the extinct species of the genera *Dysanabatium* Bernhauer, 1915 and *Orsunius* Assing, 2011 from Baltic amber are presented.

INTRODUCTION

Fossils of the subfamily Paederinae are represented by about forty species in amber inclusions and rock layers ranging from Early Cretaceous to Pleistocene (Tokareva et al. 2023). Twelve species have been described to date from Baltic and Ukrainian (Rovno) amber:

- tribe Lathrobiini, subtribe Lathrobiina:
 - four species in the genus *Dysanabatium* Bernhauer, 1915 (Bogri et al. 2018),
 - five species in the genus *Lathrobium* Gravenhorst, 1802 (Abdullah & Abdullah 1968, Pašnik & Kubisz 2002),
 - one species in the genus *Micrillus* Raffray, 1873 (Bogri et al. 2020),
 - one species in the genus *Scymbalium* Erichson, 1839 (Bogri et al. 2020),
- tribe Lathrobiini, subtribe Medonina:
 - one species in the genus *Orsunius* Assing, 2011 (Kypke & Solodovnikov 2018).

Baltic and Ukrainian (Rovno) amber are generally dated as Eocene to Oligocene (55.8-22.9 Ma) however more precise ages of various amber deposits are still the object of discussion (Bogri et al. 2018, Kypke & Solodovnikov 2018).

The taxonomic knowledge of the subfamily Paederinae (currently almost 8000 named species in 238 genera included in 3 tribes and 14 subtribes Newton (2022)) is still far from complete. Even though the number of described species (mainly from the Palaearctic and Oriental regions) has significantly increased in the last decades, redescriptions of many genera and also of many subtribes based on the modern approach are still needed. There are only a few exceptions at generic and subtribal levels like for example revisions of the

subtribes Dolicaonina (Herman 1981), Cylindroxystina (Herman 1991), Procirrina (Herman 2010), Scopaeina and Sphaeronina (Herman 2023). That's why a generic assignment of some species is still difficult. This also applies to an increased extent for fossils, where usually some characters used for extant species (e. g. shape of aedeagus) are difficult to observe.

The aim of this paper is to describe additional Paederinae fossils based on well preserved specimens in Baltic and Ukrainian (Rovno) amber and also point out some taxonomic gaps in the current concept of some genera as a challenge for future taxonomic work on this subfamily, both in extinct and extant species.

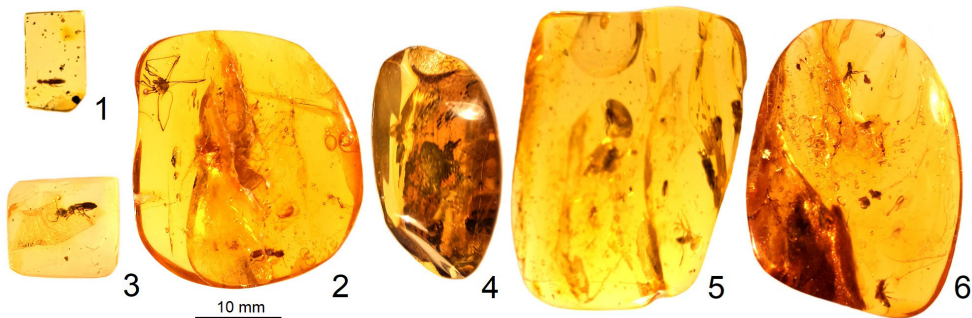
MATERIAL AND METHODS

Specimens were studied under a binocular stereomicroscope MBS 10 and Motic BA 410E-T compound microscope. Images were taken with a Canon EOS 700D or Canon 90D camera in combination with a Canon MP-E65 1-5x macro lens or using a Canon EOS 700D camera mounted on a Motic BA 410E-T compound microscope in transmitted or difused reflected light. In some cases the amber pieces were covered with a layer of clove oil before taking pictures which improved visibility of specimens. Resulting images were focus stacked using Zerene Stacker or Helicon Focus and then postprocessed in Paint.Net, Paint, XnView and Live Photogallery.

Measurements were taken with the above mentioned microscopes. Body length was measured from the tip of closed mandibles to the end of the abdomen, the length of the forebody was measured from the apex of the clypeus to the lateral apical angle of an elytron, parallel to the longitudinal axis of the body.

Each piece of amber was placed in a transparent plastic bag together with relevant identification labels.

The following abbreviations were used to indicate the depository of specimens:
IZAN I. I. Schmalhausen Institute of Zoology, National Academy of Sciences of Ukraine, Kiev;
JJRC private collection Jiří Janák, Rtně nad Bílinou, Czech Republic;



Figs. 1-6. Amber pieces with inclusions. 1- *Dibelonetes antecessor* sp. nov.; 2- *Nazeris antiquus* sp. nov.; 3- *Nazeris damzeni* sp. nov.; 4- *Nazeris electrus* sp. nov.; 5- *Dysanabatium kechrimporensense* Bogri et al.; 6- *Orsunius electronefellus* Kypke & Solodovnikov.

NHMD Natural History Museum of Denmark, Copenhagen;
RBINS Royal Belgian Institute of Natural Sciences, Bruxelles.

Other abbreviation: R = ratio.

Terminology of the ventral side of the body follows Bogri et al. (2020: Fig. 4).

TAXONOMY

Dibelonetes antecessor sp. nov.

(Figs. 1, 7-19)

Type material. Holotype (♂): Baltic region, Yantarny mine, Kaliningrad, Russia, in a transparent plastic bag together with a red identification label: "Dibelonetes antecessor sp. nov., J. Janák det. 2023", (JJRC). Rectangular piece of light yellow transparent amber, size: approx. 12 x 7 x 2 mm (Fig. 1).

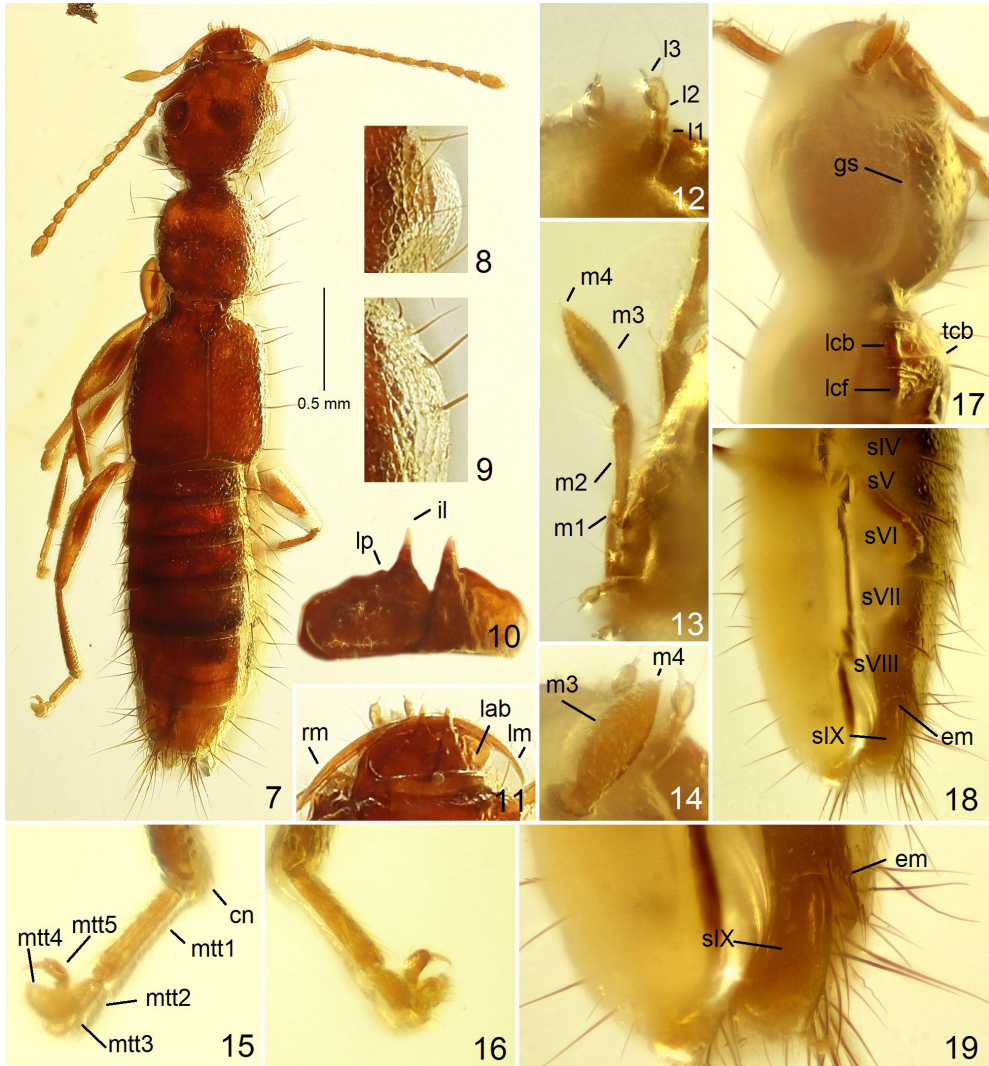
Preservation. Well preserved. Left part (a third to half of the width, including whole meso- and metaventribe) of ventral side of body not visible - covered with cloud of microbubbles.

Description. Body length 3.6 mm, forebody length 2.0 mm. Reddish, antennae and legs light reddish, palpi and tarsi yellow (Fig. 7).

Head (Fig. 7) egg-shaped, about 1.08 longer than wide, about 1.11 as wide as pronotum, with eyes large, about as long as temples, without setae between ommatidia (Fig. 8), behind eyes moderately narrowed behind, markedly convex, densely, coarsely and rugosely punctate, with long erect setae near inner margins of eyes and on temples, shiny, reticulation not visible. Neck about 1/3 as wide as head. Gular sutures fused (Fig. 17, gs). Antennae (Fig. 7) long, all antennomeres longer than wide, antennomere 1 elongate, slightly longer than segment 2 and 3 combined, antennomere 5 about twice as long wide, antennomere 10 about 1.7 times as long as wide. Labrum with internal lobes long, lacking any teeth or stout modified setae (Fig. 11, lab; Fig. 10, il), lateral projections short (Fig. 10, lp). Maxillary palpi long and slender, segment 2 narrow (Fig. 13, m2), and about 5 times as long as wide, segment 3 about as long as preceding segment, but moderately wider (Fig. 13, m3; Fig. 14, m3), segment 4 very small, aciculate (Fig. 13, m4; Fig. 14, m4), labial palpi with segment 2 shortly elongate, markedly wider than preceding segment (Fig. 12, l2), segment 3 very small and narrow (Fig. 12, l3). Mandibles very long and narrow (Fig. 11, rm, lm).

Pronotum (Fig. 7) about as long as wide, sides slightly narrowed behind, posterior angles rounded, densely, coarsely and rugosely punctate (Fig. 9), interstices smaller than diameter of punctures, microsculpture not visible. Anterior and lateral margins with long erect setae. Prosternum expanded laterally and caudally, connate with pronotal hypomera, transverse carina of basisternum complete (Fig. 17, tcb), longitudinal carina of basisternum (Fig. 17, lcb) and furcasternum (Fig. 17, lcf), well developed and visible.

Elytra (Fig. 7) long and wide, markedly longer ($R = 1.37$) and wider ($R = 1.25$) than pronotum and 1.09 times as long as wide, humeri moderately rounded, coarsely and moderately densely punctured, interstices often smaller than diameter of punctures, reticulation not visible.



Figs. 7-19. *Dibelonetes antecessor* sp. nov. 7- habitus; 8- eye; 9- anterolateral part of pronotum; 10- labrum; 11- anterior part of head; 12- labial palpi; 13- maxillary palpi; 14- apical part of maxillary palpus; 15, 16- left metatarsomere (15- dorsal, 16- ventral); 17- ventral part of head and pronotum; 18- abdominal sternites; 19- sternites VIII, IX; cn- ctenidium; em- emargination; gs- gular sutures; il- internal lobe, l- labial palpus; lab- labrum; lcb- longitudinal carina of basisternum; lcf- longitudinal carina of furcasternum; lm- left mandible; lp- lateral projection; m- maxillary palpus; mtt: metatarsus; rm- right mandible; sIV-sIX- sternite IV-IX; tcb- transverse carina of basisternum.

Abdomen (Figs. 7, 18) with basal transverse impression on tergites III-VI, tergites III-V moderately densely and finely punctate and ?setose and with sparse erect long setae, interstices on median part of tergite VI more than twice as large as diameter of punctures.

Male. Posterior margin of sternite VIII deeply emarginate (Fig. 18, 19, sVIII, em), sternite IX with posterior margin slightly emarginated (Fig. 19, sIX).

Tarsi with fourth segment markedly bilobed (Fig. 15, mtt4, Fig. 16), apical part of metatibia with ctenidium only on internal side (Fig. 15, cn).

Differential diagnosis and discussion. The genus *Dibelonetes* (subtribe Stilicopsina) currently comprises 60 species distributed in tropical areas of the world (Newton 2022). The type species *D. biplagiatus* R. Sahlberg, 1847 was described from Brazil. Several species of *Dibelonetes* were described from the Neotropics. *D. biplagiatus* and at least two not identified *Dibelonetes* from French Guiana and Peru share with *D. antecessor* sp. nov. similar shape of the labrum (Figs. 56, 58) with long internal lobes (Figs. 57, 59, il) and short lateral lobes (Figs. 57, 59 ll), lacking any tooth-shaped modified setae. Oriental (Biswas and Sengupta, 1980: Fig. 6; Figs. 62, 63, ms), Afrotropical (South Africa, Uganda, Janák, unpublished) and Madagascan (Fig. 60) species currently considered as *Dibelonetes* share the labrum with much shorter internal lobes and with about three tooth-shaped modified setae. Such differences between the new extinct species and extant old world species are not expected and surprising. The monophyly of the genus *Dibelonetes* should be tested in the future.

Etymology. The name of the species is the latin word for ancestor.

***Nazeris antiquus* sp. nov.**

(Figs. 2, 20-29)

Type material. Holotype (sex unknown): Baltic region, Yantarny mine, Kaliningrad, Russia, in a transparent plastic bag together with a red identification label: "Nazeris antiquus sp. nov., J. Janák det. 2023", (JJRC). Approximately rectangular piece of uneven surface of light honey yellow transparent amber, with a large horizontal layer covered by microbubbles and thus opaque, size: approx. 28 x 24 x 5 mm (Fig. 2).

Preservation. Well preserved. Right antennomere 11 missing, destroyed by original cutting. Apical part of ventral side of the body including the whole meso- and metaventricle not visible - overlaid by opaque layer covered with cloud of microbubbles, prosternum barely visible due to thick layer of amber and prolegs, base of elytra covered by a white reflexing layer. Syninclusion: a harvestman (Opilionida).

Description. Body length 3.9 mm, forebody length 2.7 mm. Reddish brown, abdomen brown, maxillary palpi, anterior tarsi and mandibles light reddish brown (Fig. 20).

Head (Fig. 20) egg-shaped, about 1.1 longer than wide, about 1.19 times wider than pronotum, eyes moderately large, 0.69 times as long as temples and between ommatidia with distinct moderately long setae distinctly longer than diameter of ommatidia (Fig. 23), behind eyes markedly narrowed behind, markedly convex, densely, coarsely and rugosely



Figs. 20-29. *Nazeris antiquus* sp. nov. 21- labrum; 22- head; 23- eye; 24- right antenna; 25- pronotum; 26- apical part of elytra; 27- abdomen; 28- anterior tarsi; 29- metatarsus; il- internal lobes; lab- labrum; ll- lateral lobes; lm- left mandible; m- maxillary palpus; ms- modified setae; mtt- metatarsus; pt- protarsus; rm- right mandible.

punctate, most punctures on frons confluent, with long erect setae near inner margins of eyes and on temples, shiny, reticulation not visible. Neck about 1/4 as wide as head (Fig. 22, nc). Antennae (Figs. 20, 24) long, all antennomeres longer than wide, antennomere 1 elongate, longer than segment 2 and 3 combined, antennomere 5 about three times as long wide, antennomere 10 about twice as long as wide. Labrum with internal lobes, each lobe with 3 modified stout short setae apically (Fig. 21, ms) and short obtuse lateral lobes (Fig. 22, ll). Maxillary palpi elongate, segment 3 markedly longer than segment 2 (Fig. 22, m2, m3), about three times as long as wide, last segment very small, aciculate (Fig. 22, m4). Labial palpi not visible. Mandibles very long and narrow (Fig. 22, rm, lm).

Pronotum (Fig. 25) moderately longer than wide ($R = 1.23$), sides moderately narrowed behind, posterior angles not distinctly visible, markedly convex, densely, coarsely and rugosely punctate, interstices mostly slightly larger than diameter of punctures, microsculpture not visible. Anterior and lateral margins with long erect setae. Prosternum not visible.

Elytra (Fig. 26) short and narrow, markedly shorter than pronotum ($R = 0.80$) and 1.07 times as long as wide, humeri not distinctly visible, probably only slightly marked, lateral sides behind humeri slightly widened behind, coarsely and moderately densely punctured, interstices slightly larger than diameter of punctures, reticulation not visible.

Abdomen (Fig. 27) very densely and finely punctate, some punctures on tergites III-V forming short oblique or transverse rows; shortly setose and with sparse erect long setae.

Sex unknown, sternite VIII not visible.

Tarsi with fourth segment simple (Fig. 29, mtt4), not bilobed, apical part of metatibia with ctenidium not distinctly visible (Fig. 29).

Differential diagnosis and discussion. The new species is tentatively placed in the genus *Nazeris* Fauvel, 1873 which currently comprises more than 300 species distributed in the Palaearctic and Oriental regions. *Nazeris* species are currently included in the subtribe *Astenina* (Bogri et al. 2020, Newton 2022). *N. antiquus* sp. nov. shares with extant species of *Nazeris* the following characters: general shape, long, slender mandibles (Fig. 22, lm, rm; cf. Coiffait, 1984: Fig. 80C for *Nazeris*); labrum with two internal lobes, each lobe with 3 modified stout short setae apically (Fig. 21, lab, ms, cf. Coiffait, 1984: Fig. 80B for *Nazeris*); neck narrow (Fig. 22, nc); eyes with moderately long setae between ommatidia (Fig. 23), but differs by lateral lobes of labrum obtuse but edentate (Fig. 22, ll; dentate in *Nazeris* - cf. Coiffait, 1984: Fig. 80A; Figs. 64, 65, ms, 66, 67, ms) and metatarsomere 4 simple not bilobed (Fig. 29, mtt4) (bilobed in *Nazeris* - cf. Fig. 68, 69, mtt4).

N. antiquus sp. nov. differs from both below described extinct species *N. damzeni* sp. nov. and *N. electrus* sp. nov. by reddish color, by coarsely, rugosely punctate head and pronotum with punctures partly confluent and long setae between ommatidia.

Etymology. The name of the species is the latin word for ancient.

Nazeris damzeni sp. nov.

(Figs. 3, 30-42)

Type material. Holotype (♀): amber inclusion, Rovno region, Ukraine, in a transparent plastic bag together with a red identification label: "Nazeris damzeni sp. nov., J. Janák det. 2023", (JJRC). Rectangular piece of light yellow transparent amber, size: approx. 12 x 11 x 3 mm (Fig. 3).

Preservation. Well preserved. Dorsal side of body surrounded by microbubbles, anterior part of head including base of labrum covered by thick layer of microbubbles and invisible in light microscopy, other parts of body partly covered with thin layer of microbubbles, thus slightly cloudy.

Description. Body length 4.8 mm, forebody length 3.2 mm. Black, elytra brown, paratergites and apical part of abdominal segment VII and VIII and legs brown (Figs. 30, 31).

Head (Fig. 34) about 1.06 as large as long, 1.5 times wider than pronotum, eyes very large, 1.3 times as long as temples and between ommatidia with very short hardly visible setae only slightly longer than diameter of ommatidia (Fig. 37, 38, s), behind eyes markedly narrowed behind, slightly convex, moderately finely and very densely punctate and shortly setose, interstices at least twice as large as than diameter of puncture, with short erect setae near inner margins of eyes, slightly shiny, reticulation not visible. Gular sutures fused (Fig. 39, gs). Neck about 1/4 as wide as head ((Fig. 39, nc). Antennae (Figs. 34, 39) moderately long, all antennomeres longer than wide, antennomere 1 elongate, but shorter than segment 2 and 3 combined, antennomere 5 about twice as long as wide, antennomere 10 about 1.2 as long as wide. Labrum with only apical part visible dorsally (Figs. 32) and ventral view (Figs. 39, 40), with two internal lobes, each lobe with 3 modified stout short setae (Figs. 33, 40, il), lateral lobes not visible. Maxillary palpi elongate, segment 3 markedly longer than segment 2, almost three times as long as wide, last segment very small, aciculate (Fig. 32, 41, m2-m4). Labial palpi elongate with second segment about 2.5 times as long as wide, last segment markedly narrower and shorter than segment 2 (Fig. 40, l2, l3). Mandibles long and narrow (Fig. 32, 34, rm), right mandible with 3 sharp teeth.

Pronotum (Fig. 34) markedly longer than wide ($R = 1.28$), sides markedly widened behind to middle, then markedly narrowed to base, posterior angles obtuse, regularly convex, very densely, moderately coarsely, rugosely punctate, interstices much smaller than diameter of punctures, slightly shiny, microsculpture not visible, long erect setae missing. Prosternum expanded laterally and caudally, connate with the pronotal hypomera, transverse carina of basisternum (Fig. 42, tcb) fine, superior marginal line (Fig. 42, sml) and prosternal carina (Fig. 42, pc) narrow. Meso- and metaventriles not visible.

Elytra (Fig. 34) moderately long and large, about as long as pronotum and 1.25 times as long as wide, slightly transversely convex, humeri only slightly marked, lateral sides behind humeri slightly widened behind, moderately coarsely and moderately densely punctured, less densely and finely than on pronotum, interstices mostly only slightly smaller than diameter of punctures, reticulation not visible.

Abdomen (Fig. 30, 39) very densely and finely punctate.

Female. Sternite VIII apically rounded (Fig. 39, sVIII).



Figs. 30-42. *Nazeris damzeni* sp. nov. 30- habitus dorsal; 31- habitus ventral; 32- labrum; 33- labrum, modified setae; 34- forebody; 35- metatarsus; 36- apical part of metatibia; 37, 38- eye (black narrow lines indicate barely visible light setae); 39- dorsal side of body; 40- apical part of labrum from ventral view, labial palpi; 41- maxillary palpus; 42- prosternum ventro-apical; cn- ctenidium; il- internal lobes of labrum; l- labial palpus; lab- labrum; m- maxillary palpus; mttb - metatibia; mtt- metatarsus; nc- neck; pc- prosternal carina; rm- right mandible; sml- superior marginal line; s- setae; sp- spine; sVIII- sternite VIII; tcb- transverse carina of basisternum.

Tarsi with fourth segment simple (Fig. 35, mtt4), not bilobed, metatibia only with one ctenidium - on inner side (Fig. 36, cn), apical spine moderately long (Fig. 36, sp).

Differential diagnosis. The new species is tentatively placed in the genus *Nazeris* Fauvel, 1873. *N. damzeni* sp. nov. shares with extant species of *Nazeris* following characters: general shape, long, slender mandibles (Fig. 32, 39, rm); labrum with two internal lobes, each lobe with 3 modified stout short setae apically (Figs. 32, 33, 40, il); neck narrow (Fig. 39, nc); eyes with setae between ommatidia (Figs. 37, 38, s), but differs by metatarsomere 4 simple not bilobed (Fig. 35, mtt4).

N. damzeni sp. nov. differs from both of the other extinct species described here, *N. antiquus* sp. nov. and *N. electrus* sp. nov. by very densely punctured pronotum, very short setae between ommatidia and from *N. antiquus* sp. nov. also by dark, black color.

Etymology. The species is named to honor Jonas Damzen (Lithuania), who cut and polished the amber pieces and provide general pictures of specimens taken by his son.

***Nazeris electrus* sp. nov.**

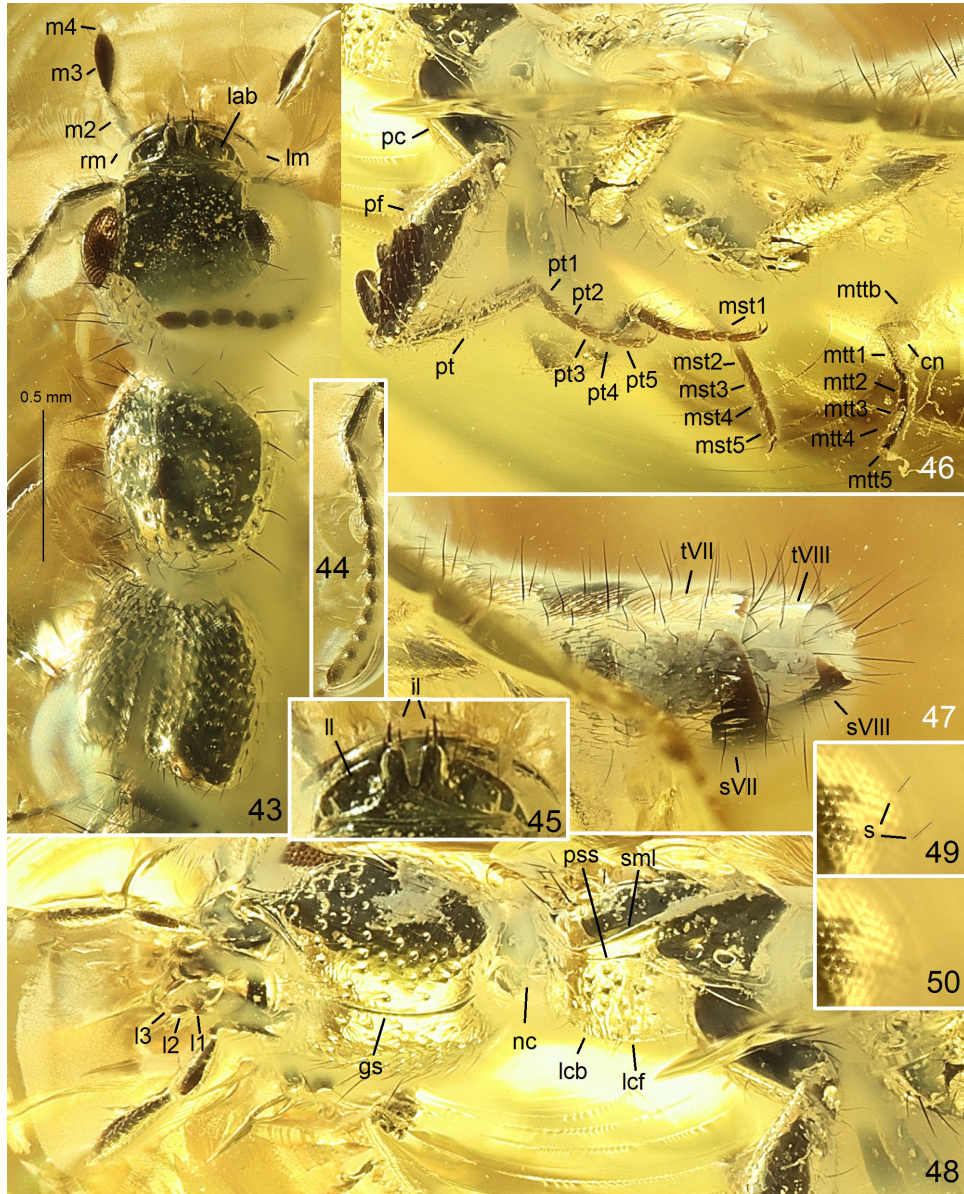
(Figs. 4, 43-50)

Type material. Holotype (♀): amber inclusion, Rovno region, Ukraine, in a transparent plastic bag together with a red identification label: “*Nazeris electrus* sp. nov., J. Janák det. 2023”, (JJRC). Elongate piece of light honey yellow transparent amber with uneven surface, with two large dark horizontal layers covered by dirt and microbubbles and thus opaque, size: approx. 28 x 15 x 10 mm (Fig. 4).

Preservation. Well preserved. Apical part of ventral side of body including whole meso- and metaventrite and right tempora and right lateral part of tergites not visible - overlaid by opaque layer covered with cloud of microbubbles, some other parts (neck, antennae, femora) surrounded or partly covered by microbubbles.

Description. Body length 3.6 mm, forebody length 2.1 mm. Black, apical part of abdominal segment VII and VIII and tarsi brown (Fig. 43).

Head (Fig. 43) about 1.05 as wide as long, 1.2 times wider than pronotum, eyes large, 1.2 times as long as temples and between ommatidia with sparse moderately, fine, moderately short barely visible setae, only slightly longer than diameter of ommatidia (Fig. 49, 50, s), behind eyes markedly narrowed behind, markedly convex, sparsely and moderately finely punctate, interstices slightly or markedly (on tempora) larger than puncture diameter, with long erect setae near inner margins of eyes, on frons, on temples and on disc, shiny, reticulation not visible. Gular sutures fused (Fig. 48, gs). Neck about 1/3 as wide as head (Fig. 48, nc). Antennae (Fig. 44) long, all antennomeres longer than wide, antennomere 1 elongate, but shorter than segment 2 and 3 combined, antennomere 5 about twice as long as wide, antennomere 10 about 1.1 as long as wide. Labrum with two internal lobes, each lobe with 3 modified stout short setae apically (Fig. 45, il) and obtuse lateral lobes (Fig. 45, ll). Maxillary palpi elongate, segment 3 slightly longer than segment 2, about three times as long as wide, last segment very small, aciculate (Fig. 43, m4). Labial palpi elongate with second



Figs. 43-50. *Nazeris electrus* sp. nov. 43- forebody; 44- antenna; 45- labrum; 46- legs; 47- apical part of abdomen; 48- ventral part of head and pronotum; 49, 50- eye (black narrow lines indicate barely visible light setae); cn- ctenidium; gs- gular sutures; il- internal lobe; lab- labrum; ll- lateral lobe; nc- neck; pss- protosternal suture; lcf- longitudinal carina of furcasternum; lm- left mandible; lp- labial palpus; m- maxillary palpus; mst- mesotarsus; mtt- metatarsus; mttb- metatibia; pc- procoxa; pf- profemur; pt- protibia; pt1-5- protarsus 1-5; rm- right mandible; s- setae; sml- superior marginal line; lcb- longitudinal carina of basisternum; sVII, sVIII- sternite VII, VIII; tVII, tVIII- tergite VII, VIII.

segment about twice as long as wide and last segment narrower and shorter than segment 2 (Fig. 48, l2, l3). Mandibles long and narrow (Fig. 43, rm, lm).

Pronotum (Fig. 43) moderately longer than wide ($R = 1.17$), sides moderately narrowed behind, posterior angles largely rounded, with shallow lateral impressions and narrowly bordered posterior margin, sparsely and moderately coarsely and rugosely punctate, interstices mostly larger than diameter of punctures, shiny, microsculpture not visible. Anterior and lateral margins with long erect setae. Prosternum not expanded laterally and caudally, not connate with the pronotal hypomera (Fig. 48), protosternal suture (Fig. 48, pss) and superior marginal line (Fig. 48, sml) separate, longitudinal carina of basisternum and furcasternum distinctly visible (Fig. 48, lcb, lcf). Meso- and metaventrites not visible.

Elytra (Fig. 43) short and narrow, about as long as pronotum and 1.1 times as long as wide, slightly impressed along suture, humeri only slightly marked, lateral sides behind shoulders slightly widened behind, coarsely and moderately densely punctured, interstices slightly larger than diameter of punctures, reticulation not visible.

Abdomen (Fig. 47) densely and finely punctate, some punctures on tergites V forming short oblique or transverse rows; shortly setose and with sparse erect long setae.

Female. Sternite VIII (Fig. 47, sVIII) apically rounded.

Tarsi with fourth segment simple (Fig. 46, pt4, mst4, mtt4), not bilobed, metatibia only with one ctenidium - on inner side (Fig. 46, cn).

Differential diagnosis. The new species is tentatively placed in the genus *Nazeris* Fauvel, 1873. *N. electrus* sp. nov. shares with extant species of *Nazeris* following characters: general shape, long, slender mandibles (Fig. 43, lm, rm); labrum with two internal lobes, each lobe with 3 modified stout short setae apically (Figs. 43, lab, 45, il, ll); neck narrow (Fig. 48, nc); eyes with setae between ommatidia (Figs. 49, 50, s), but differs by lateral lobes of labrum obtuse but edentate (Fig. 45, ll) and metatarsomere 4 simple not bilobed (Fig. 46, mtt4).

N. electrus sp. nov. differs from both of the other extinct species described here, *N. antiquus* sp. nov. and *N. damzeni* sp. nov. by the very coarsely and sparsely punctured head and pronotum, short setae between ommatidia, from *N. antiquus* sp. nov. also by dark, black color and from *N. damzeni* sp. nov. by prosternum not connate, with pronotal hypomera with protosternal suture and superior marginal line separate.

Etymology. The name is derived from a latin word for amber (electrum).

List of extant species used for comparison and illustrations:

Dibelonetes biplagiatus R. Sahlberg, 1847 - pictures of a syntype from A. Fauvel's collection (RBINS) available online: <https://virtualcollections.naturalsciences.be/virtual-collections/entomology/coleoptera/staphylinidae/paederinae/dibelonetes-biplagiatus-sahlberg-1847>;

Dibelonetes sp.: "PERU, 18.x.2002, MACHU PICCHU, ca. 2400m, forest, J. Janák lgt., sifting", 1 ♀, (JJRC);

Dibelonetes sp.: "GUYANE F. NE 10 km SSE Roura, 17.I.2006, Šárovec & Houška lgt.", 1 ♂, (JJRC);

- Dibelonetes* sp.: “S-INDIA, Kerala State, Kallar env., 30 km NE of Trivandrum, valley of riv. Kallar, 77°05’E 8°45’N, ca 300-;500m, 28-30.vi.1999, Z. Kejval & M. Trýzna leg.”, 1 ♂, (JJRC).
- Dibelonetes hova* Lecoq, 1996: “MADAGASCAR: Province d’Antsiranana, Parc National Montagne d’Ambre, 3.6 km 235° SW Joffreville, Elev 925m, 20-26 Jan 2001 / 12° 32’ 4” S, 49° 10’ 46” E, coll. Fisher, Griswold et al., California Acad. of Sciences, sifted litter, montane rainforest, code: BLF 2564”, 1 ♂, (JJRC),
- Haplonazeris* sp.: “BRAZIL, 25.x.2001, Rio de Janeiro, Morro de Babilónia, J. Janák lgt., 100-200m”, 1 ♂ (JJRC);
- Nazeris pallidipes* Reitter, 1888: “W Caucasus, Sochi, Aibgo, Mt R., A. G. Koval leg.”, 1 ♀, (JJRC).
- Nazeris nevadensis* Koch, 1940: “[SPAIN] km 2.5 de PFEa [?], Robrehondo 1200m, S. Cazorla, 5-IV-75, L.S. Subias leg.”, 1 ♂, (JJRC).

NEW RECORDS

Dysanabatium kechrimparens Bogri, Solodovnikov & Żyła, 2018

(Figs. 5, 51-54)

Dysanabatium kechrimparens Bogri, Solodovnikov & Żyła, 2018: 441.

Type material. Holotype (♂): amber inclusion, country of origin: Denmark (NHMD), not examined. Paratypes: 4 specimens found in Ukraine (Rovno amber), Poland (Gdansk, Vysla valley) and west Russia (Kaliningrad), not examined.

Additional material: 1 ♀: amber inclusion, Baltic region, Yantarny mine, Kaliningrad, Russia, (JJRC).

Note. Male sternite VIII deeply triangularly emarginate (Fig. 54, em). The examined specimen (total length 4.0 mm, forebody length 2.1 mm) corresponds well with the description and the pictures in the original description, which were based on 5 specimens found in amber from different places. *D. kechrimparens* differs from related extinct species by relatively longer antennae (length of antenna/length of forebody = 0.68 in examined specimen, Figs. 51-53), metatarsomere 1 shorter than metatarsomere 5 (almost as long as metatarsomere 5 in examined specimen - Fig. 54, mtt1, mtt5), pronotum with coarse punctation (Fig. 53), elytral punctation (only near suture in examined specimen) not arranged in striae (Fig. 53).

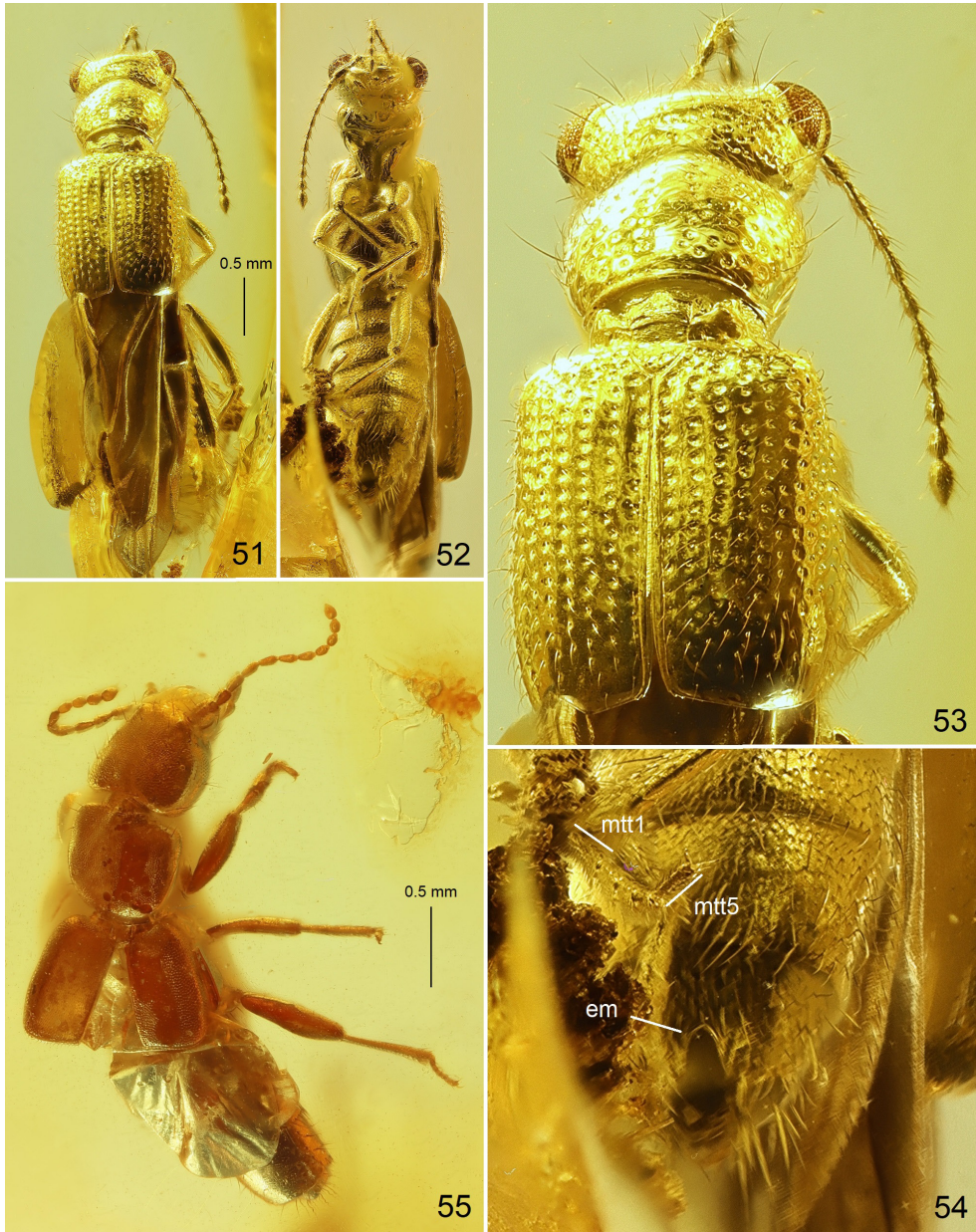
Orsunius electronefelus Kypke & Solodovnikov, 2018

(Figs. 6, 55)

Orsunius electronefelus Kypke & Solodovnikov, 2018: 3.

Type material. Holotype (♂): amber inclusion, Rovno region, mined in Klesov, Ukraine (IZAN), not examined.

Additional material: 1 ♀: amber inclusion, Baltic region, Yantarny mine, Kaliningrad, Russia, (JJRC).



Figs. 51-55. 51-54- *Dysanabatium kechrimparsense* Bogri et al.; 55- *Orsunius electronefellus* Kypke & Solodovnikov. 51, 55- habitus dorsal; 52- habitus ventral; 53- forebody; 54- last abdominal sternites; em- emargination; mtt- metatarsus.

Note. The examined specimen (total length 3.4 mm, forebody length 2.1 mm) corresponds well with the description and pictures in the original description, which were based on micro-CT scans of a holotype inclusion entirely covered by a thick layer of air microbubbles and invisible in light microscopy. Concerning the arthropod fauna in Rovno amber, there are species unique to the Rovno amber, but there are also many species that occur in other types of Baltic amber (Perkovsky et al. 2007, Dlussky and Rasnitsyn 2009, Perkovsky 2016, Kypke and Solodovnikov 2018), thus an occurrence of this species in both types of amber is possible.

CONCLUSIONS

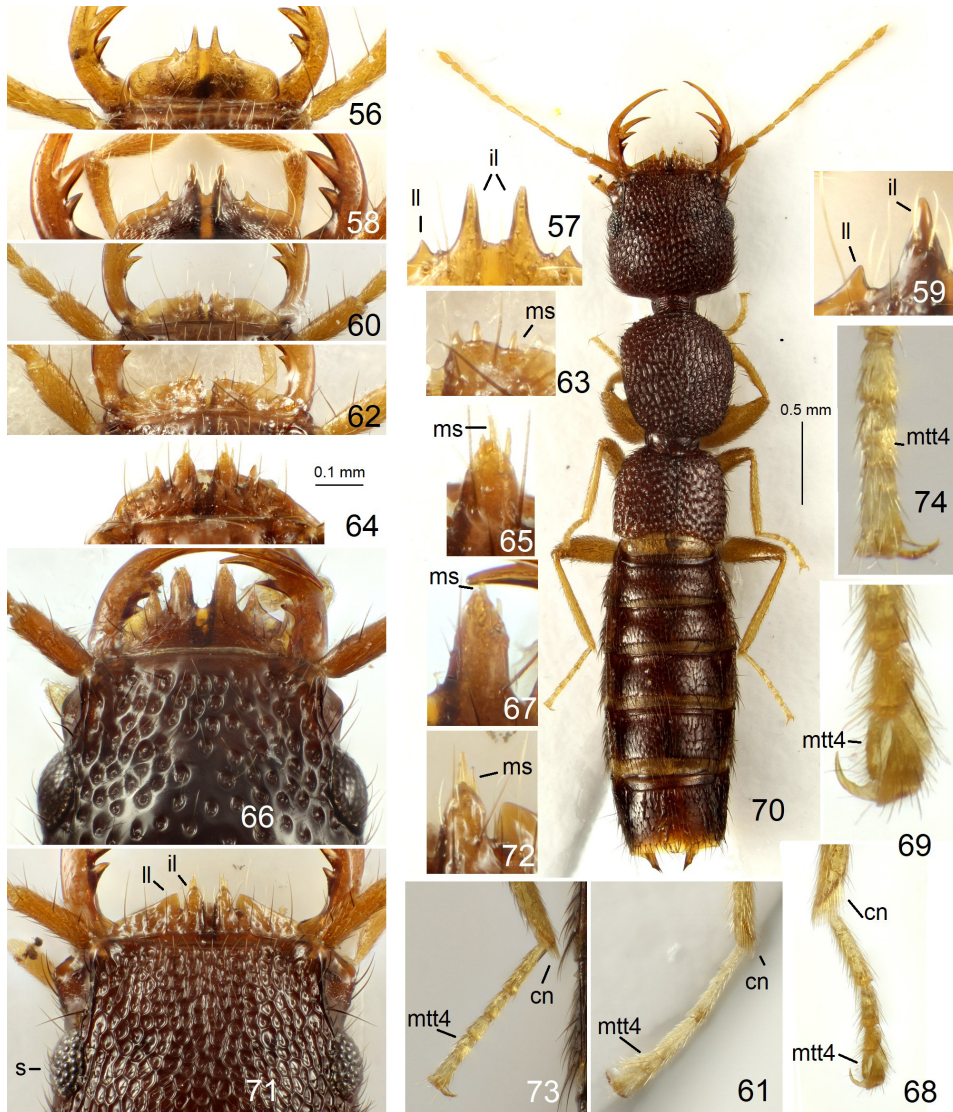
The new extinct species *Dibelonetes antecessor* sp. nov. surprisingly markedly differs from extant congeners from the Oriental region (see the description for details). Connections of extinct species from Baltic amber and the Oriental region have been confirmed in various groups of animals, such as in Paederinae in the genera *Dysanabatium* (Bogri et al. 2018), *Orsunius* (Kypke & Solodovnikov, 2018), *Micrillus* and *Scymbalium* (Bogri et al. 2020).

Three additional new extinct species were described in the genus *Nazeris*, which is widely distributed in the Oriental region, which was supported by the general shape of the body, similar shape of the labrum with internal lobes, each with 3 modified stout short setae apically, but all differ from extant species by having metatarsomere 4 not bilobed and lateral lobes of labrum edentate. The generic affiliation to *Nazeris* is also supported by other unpublished data of extinct Paederinae from Baltic amber identified as *Nazeris* by Dagmara Żyła. A synchrotron scan with visible shape of aedeagus with two apophyses typical for *Nazeris* exists for one of these specimens (Żyła, email from 16.10.2023)

Bilobed tarsomere 4 is currently considered as an important character for the subtribes Astenina and Stilicopsina (Newton et al. 2001). On the other hand the tribe Echiasterina is characterised by the simple (not bilobed) metatarsomere 4. Newton et al. (2001) discussed similarities between Echiasterina and Astenina.

All new extinct *Nazeris* (*N. antiquus* sp. nov. at most) are externally similar to extant species of the genus *Haplonazeris* Coiffait & Sáiz, 1968, currently included in the tribe Echiasterina (Newton 2022, Tokareva et al. 2022). This genus currently comprises three named species from Chile (Coiffait & Sáiz 1968, Sáiz 1970), but has a wider distribution (Brazil, *Haplonazeris* sp. Fig. 70). *Haplonazeris* shares with all new extinct *Nazeris* the following characters: general shape (Fig. 70), long, slender mandibles (Fig. 70); labrum with internal lobes (Fig. 71, il), each lobe with 3 modified stout short setae (Fig. 72, ms), lateral lobes of labrum obtuse but edentate (Fig. 71, ll); neck narrow (Fig. 70); eyes with setae between ommatidia (Fig. 71, s), and metatarsomere simple not bilobed (Fig. 73, mt4).

The presence of only one cteninidium on the inner face of the metatibia and lack of a ctenidium on the outer face (Figs. 15, 36, 46, cn) excludes the newly described species from Lathrobiina (which also includes the genus *Dysanabatium* Bernhauer, 1915).



Figs. 56-74. 56-57- *Dibelonetes* sp., French Guiana; 58-59- *Dibelonetes* sp., Peru; 60-61- *Dibelonetes hova* Fauvel; 62-63- *Dibelonetes* sp., India; 64-65- *Nazeris nevadensis* Koch; 66-69- *Nazeris pallidipes* Reitter; 70-74- *Haplonazeris* sp., Brazil. 56, 58, 60, 59, 61- labrum; 57, 59, 63, 65, 67, 72- internal lobes of labrum; 66, 71- anterior part of head; 70- habitus; 61, 68, 73- metatarsus; 69, 74- apical part of metatarsus; cn- ctenidium; il- internal lobes; ll- lateral lobes; mtt4- metatarsus 4; ms- modified setae; s- setae.

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