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Calomicrus eocenicus sp. nov. (Coleoptera: Chrysomelidae: Galerucinae) from Baltic amber

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A new leaf-beetle species, *Calomicrus eocenicus* sp. nov. (Coleoptera: Chrysomelidae: Galerucinae) is described from the Baltic amber. It is the first species of tribe Luperini described from fossil resins. A new paleoendemic species is compared with recent species of the genus and differs from them in distinctly larger and deeper elytral punctation and brown-reddish body with dark brown head.

Key words: Coleoptera, Chrysomelidae, Galerucinae, Luperini, new species, Baltic amber, Upper Eocene, fossil.

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INTRODUCTION

Information on fossil Galerucinae (excluding Alticini) is poor (Ponomarenko & Kirejtshuk 2014). Only two extinct species of Luperini have been described: *Luperus fossilis* was described from the outcrop of the Upper Miocene [Rott, Germany] (Schlechtendal 1894), and *Diabrotica exesa* from the outcrop of the Lower Oligocene [Florissant, USA] (Wickham 1911). Few records are known from fossil resins and all of them contain nothing more than a generic or tribal identification, with no formal descriptions (Bachofen-Echt 1949; Hieke & Pietrzeniuk 1984; Hope 1836; Klebs 1910; Spahr 1981). Members of *Galerucella* Crotch, 1837, *Luperus* Geoffroy, 1762, and *Monolepta* Chevrolat, 1836 are recorded in Baltic amber. In a check-list of Coleoptera known from Baltic amber (Alekseev 2013), *Criocerina pristina* Germar, 1813 was erroneously mentioned in Galerucinae; it is member of the subfamily Criocerinae.

In the current paper a new species of the genus *Calomicrus* Dillwyn is described from Baltic amber. It is the first described species of Luperini from fossil resins.

MATERIAL AND METHODS

The type material is deposited in the private collection of Andris Bukejs (Daugavpils, Latvia). Observations were made using a Nikon SMZ 745T stereomicroscope. The photographs were taken with a Zeiss Luminar 63mm lens mounted on a Canon 50D body.

Baltic amber is mainly found on the southern coasts of the Baltic Sea and originates from the

Eocene. Although most estimates of the age of Baltic amber have placed it as deriving from the early Middle Eocene (Lutetian) (48.6–40.4 my), based largely on K-Ar dating (Ritzkowski 1997), palynological biostratigraphy of the specific region where the sample originated suggests a younger, Priabonian age (37.2–33.9 my) (Aleksandrova & Zaporozhets 2008). A detailed discussion of the stratigraphic basis for the age of Baltic amber deposits can be found in Perkovsky et al. (2007). For the purposes of this study, we follow the Priabonian estimation. According to Turkin (1997) Baltic amber was produced by *Pinus succinifera* (Conw.) Schub., which together with oak in the Eocene dominated the humid mixed forests cover of Northern and Central Europe.

SYSTEMATIC PALAEONTOLOGY

Family Chrysomelidae Latreille, 1802
Subfamily Galerucinae Latreille, 1802
Tribe Luperini Chapuis, 1875
Subtribe Luperina Gistel, 1848
Genus *Calomicrus* Dillwyn, 1829

***Calomicrus eocenicus* sp. nov.**
(Fig. 1)

Type material
Holotype: "Nr. 028" [white printed label], "Holotype / *Calomicrus eocenicus* sp. nov. / Bukejs A., Bezděk J. des. 2014" [red printed label]; female. A complete beetle with partly exposed hind wings; ventral side of the specimen indistinctly visible because of beetle location in the amber piece and structure of amber. The specimen is embedded in a small, subrectangular amber piece (length 12 mm, width 10 mm, weight 0.6 grams). Syninclusion: one small specimen of Diptera; one stellate hair. Many small gas bubbles and few cracks diffusely spread throughout the amber piece.

Type strata
Baltic Amber, Upper Eocene, Prussian Formation.

Type locality
Baltic Sea coast, Yantarny village [formerly Palmnicken], Kaliningrad Region, Russia.

Etymology
This new species is named after geological epoch Eocene.

Differential diagnosis

Based on the brown-reddish body and dark brown head, *Calomicrus eocenicus* sp. nov. is similar to numerous dorsally pale *Calomicrus* species. All recent species with completely pale dorsum are, however, yellow or yellow-brownish, not brown-reddish as in *C. eocenicus* sp. nov. Moreover, all recent species have distinctly finer punctation of elytra than in the new species.

Other characters which can be used for separation from recent pale species can be summarized as follows. Four species from Central Asia, *C. hissaricus* (Ogloblin, 1936), *C. ghilarovi* Lopatin, 1988, *C. deserticola* (Ogloblin, 1936) and *C. gussakovskyi* (Ogloblin, 1936), differ in simple claws without teeth, while in *C. eocenicus* sp. nov. claws have a distinct basal tooth.

Calomicrus mercurini (Laboissière, 1917) from Morocco has lateral margins of pronotum strongly convergent posteriorly, but in the new species lateral margins of pronotum are slightly narrowed posteriad.

Pronotum of the following species is more transverse with ratio pronotal width/length at least 1.5 or more (1.4 in *C. eocenicus* sp. nov.): *C. fallax* (Joannis, 1865), *C. pardoi* (Codina Padilla, 1961), *C. espanoli* (Codina Padilla, 1963), *C. nigritarsis* (Joannis, 1865), *C. ophthalmicus* (Ogloblin, 1936), *C. kaszabi* (Lopatin, 1963), *C. wilcoxi* Lopatin, 1984, *C. vanharteni* Lopatin, 2001, *C. volkovitshi* Lopatin & Nesterova, 2013, *C. sugonjaevi* (Lopatin, 1983), *C. albanicus* (Csiki, 1940) and *C. kocheri* (Codina Padilla, 1961). In contrast, the pronotum is more quadrate (ratio pronotal width/length 1.15-1.25) in *C. patanicus*

Lopatin, 1966, *C. trabzonus* Lopatin & Nesterova, 2013 and *C. lividus* Joannis, 1865.

Metatarsomere 1 remarkably longer than following two metatarsomeres combined can be found in *C. arabicus* Lopatin & Nesterova, 2006, C. *bispiniger* (Israelson, 1969) and *C. syriacus* (Weise, 1924), but in *C. eocenicus* sp. nov. metatarsomere 1 is shorter than metatarsomeres 2 and 3 combined. Ventral side of body is at least partly black in *C. malkini* Warchałowski, 1991, *C. prujai* (Codina Padilla, 1963), *C. populi* (Lopatin, 1963), *C. wollastoni* Paiva, 1861 and *C. sordidus* (Kiesenwetter, 1873), but in *C. eocenicus* sp. nov. ventral part of body is uniformly brownish. Moreover, *C. sordidus* has vertex and frontal tubercles black.

The ratio pronotal width/length between 1.35-1.5 is similar to *C. eocenicus* sp. nov. (ca 1.4) and the dorsal and ventral parts of body are concolorous in two North African species – *C. setulosus* (Weise, 1886) and *C. tripolitanus* (Pic, 1939). Both differ from the new species in yel-

Fig. 1. *Calomicrus eoceninus* sp. nov., holotype: habitus, dorso-lateral view (photos by Marius Veta)

lowish-brown coloration and distinctly finer elytral punctation.

Comments

The Old World genus *Calomicrus* Dillwyn, polyphyletic in current concept, comprises a large number of species in several habitually different groups. Now, 71 species and subspecies are classified in Palaearctic *Calomicrus* (Beenen 2010, Bezděk unpubl. data). Particularly in eastern Palearctic Region, transfers of most of the species to other genera are expected or were already done (Bezděk 2013; Bezděk & Lee in press). Probably also some of southwestern Palearctic species with longer metatarsomere 1 belong to the genus *Monolepta* in fact.

The comparison with recent fauna of western Palearctic *Calomicrus* is somewhat difficult because the holotype of new species is female and thus some important characters remain unknown (e.g. shapes of protarsus, last abdominal ventrite, aedeagus). The characters which can be used for discrimination with recent species are the coloration and larger and deeper elytral puncturation.

Description

Body length 4.2 mm, max. width 2.2 mm; elongate, slender, weakly convex dorsally; brown-reddish, head dark brown.

Head hypognathous, relatively small, shiny, glabrous; nearly as wide as width of anterior margin of pronotum; frons and vertex weakly convex, without distinct punctures. Eyes laterad, relatively large, entire, convex, with distinct facets; vertical diameter 1.7 times more than transverse diameter. Distance between eyes nearly equal to 3.5 diameters of one antennal socket. Temples short, about as wide as 0.5 vertical diameter of one eye. Labrum transverse, trapezoidal; anterior margin almost straight; with few recumbent setae. Antennae 11-segmented, filiform; moderately long, extending to middle of elytra; apex of last antennomere pointed. Length ratios of antennomeres 1-11 equal to 12-7-9-11-14-12-12-10-10-10-11. Antennal insertion placed behind anterior border of eyes. Distance between antennal sockets nearly equal to diameter of one socket.

Pronotum transverse, approximately 1.4 times wider than long, widest in anterior 1/3, slightly narrowed anteriad and posteriad. Lateral margins rounded, with erect setae (as elytral setae); anterior margin weakly concave, posterior margin almost straight; all margins with narrow bordering. Base of pronotum distinctly narrower than elytral base. Pronotal punctation dense and fine (distinctly smaller than elytral punctures). Anterior and posterior setiferous pores with long setae, about 2.5 times as long as setae of lateral margins.

Scutellum large, triangular with rounded apex; impunctate, glabrous, shiny. Elytra weakly convex, subparallel, slightly divergent posteriorly, widest in apical 1/3; covered with small, dense, irregular punctures and sparse, short, erect setae. Humeral calli well developed. Elytral apices rounded. Hind wings present. Pygidium with fine punctures and semierect setae; apex with wide and shallow emargination.

Ventral surface covered with pale hairs and fine punctures. Epipleura oblique (well visible in lateral view), wide in basal 1/4, narrowed before the middle, then thin and disappearing before elytral apex. Procoxal cavity open posteriorly. Abdomen with five visible ventrites; ventrite 5 regularly rounded, without incisions.

Legs slender; covered with short, pale, recumbent setae. Tibiae with minute spine apically. Protarsomeres not dilated; protarsomere 1 weakly dilated distally, about 0.8 times as long as protarsomeres 2-3 combined, nearly wide as protarsomere 2; length ratios of metatarsomeres 1-4 equal to 8-5-5-9. Tarsomere 3 of all tarsi deeply bilobed. Claws with distinct tooth basally.

Note

The regularly rounded, ventrite 5 without incisions shows that the specimen is female.

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