

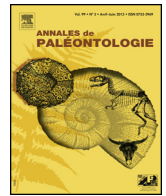


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Original article

## Discovery of a new fossil soldier beetle in Eocene Baltic amber, with the establishment of the new tribe Cacomorphocerini

*Découverte d'un nouveau coléoptère fossile dans l'ambre éocène de la Baltique, et création de la nouvelle tribu Cacomorphocerini*

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### ARTICLE INFO

#### Article history:

Received 7 November 2017

Accepted 12 February 2018

Available online xxx

#### Keywords:

Baltic amber

Cacomorphocerini

*Cacomorphocerus wiszniewskii*

New tribe

New species

#### Mots clés :

Ambre de la Baltique

Cacomorphocerini

*Cacomorphocerus wiszniewskii*

Nouvelle tribu

Nouvelle espèce

### ABSTRACT

Eocene forest ecosystems can be considered as rich biodiversity hotspots regarding soldier beetles (family Cantharidae). Paleogene European ambers, for instance, comprised many genera that are still extant in Europe, but also extinct forms and lineages such as the tribe established herein, or the tribe Mimoplatycini Kazantsev, 2013 that mimics the lycids. In this note, the authors describe *Cacomorphocerus wiszniewskii* sp. nov., and the new tribe Cacomorphocerini tri. nov. is proposed for *Cacomorphocerus* Schaufuss, 1892 and *Sucinocantharis* Kuška and Kania, 2010. The new tribe is characterized by antennae with 12 or 16 articles, with saucer-shaped or dilated central antennomeres and is distributed in Eocene Baltic and Rovno amber. Furthermore, *Cacomorphocerus* is transferred from the subfamily Dymorphocerinae Brancucci, 1980 to Cantharinae Imhoff, 1856.

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### RÉSUMÉ

La période Éocène a constitué, avec ses paléoenvironnements forestiers, un riche « hotspot » de la biodiversité des coléoptères Cantharidés, comprenant beaucoup de genres vivants encore en Europe, mais aussi des formes et des lignées disparues telles que la nouvelle tribu établie ici ou la tribu Mimoplatycini Kazantsev, 2013 qui imite les lycides. Dans cet article, les auteurs décrivent une nouvelle espèce, *Cacomorphocerus wiszniewskii* sp. nov., et la nouvelle tribu Cacomorphocerini tri. nov. est proposée pour *Cacomorphocerus* Schaufuss, 1892 et *Sucinocantharis* Kuška et Kania, 2010. La nouvelle espèce confirme l'affiliation, récemment établie par Kazantsev, dans la sous-famille Cantharinae. En outre, *Cacomorphocerus* est transféré de la sous-famille Dymorphocerinae Brancucci, 1980 à Cantharinae Imhoff, 1856.

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## 1. Introduction

The genus *Cacomorphocerus* has been described by Schaufuss (1892) based on a single specimen embedded in Eocene Baltic amber and on a characteristic antennal shape similar to *Dymorphocerus* and subsequently classified for this similarity in the subfamily Dymorphocerinae Brancucci, 1980 (Kazantsev, 2013; Fanti, 2017b). This genus appears to be common in Baltic

amber, it is also present in the coeval Rovno amber and is currently composed of two species: *C. cerambyx* Schaufuss, 1892 and *C. jantarius* (Kuška and Kania, 2010), the latter taxon known for at least five specimens, which is the highest number for the fossil species of the family Cantharidae. The discovery of a well-preserved new species, with well visible mandibles, antennae and palps, allowed evidencing that this genus belongs actually to the subfamily Cantharinae Imhoff, 1856. This subfamily consists of two extant tribes and several fossil taxa: Cantharini Imhoff, 1856 which are characterized by head not posteriorly restricted, pronotum rounded, and gular sutures widely separated, and Podabrimi Gistel, 1856 with head distinctly constricted behind eyes, pronotum truncate anteriorly and gular sutures confluent

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(Ramsdale, 2002; Pelletier and Hébert, 2014). Now is herein established a new extinct tribe of Cantharinae, with high number of antennomeres and with many of these saucer-shaped. Accordingly, all fossil taxa with more of eleven antennomeres (filiforms or modified) belong now, to the subfamily Cantharinae (Schaufuss, 1892; Kuška, 1996; Kuška and Kania, 2010; Kazantsev, 2013; Fanti, 2017a, 2017b).

## 2. Material and methods

The examined material is deposited in the Andrzej Myrcha Nature Center, University of Białystok (UCP UwB), Poland (Kupryjanowicz collection). The specimen is included in a rectangular amber piece measuring  $2.8 \times 1.3 \times 0.4$  mm. Observations, digital photographs and measurements were taken using an Olympus DSX110 stereomicroscope and integrated color CCD equipped by lens DSXPLFL 3.6x and image sensor 1/1.8 inch, 2.01 megapixels. The Eocene stratigraphy is here conforms to the International Chronostratigraphic Chart v 2017/02 (Cohen et al., 2013 updates).

## 3. Systematic

Class Insecta Linnaeus, 1758  
Order Coleoptera Linnaeus, 1758  
Superfamily Elateroidea Leach, 1815  
Family Cantharidae Imhoff, 1856 (1815)  
Subfamily Cantharinae Imhoff, 1856 (1815)

Tribe **Cacomorphocerini** tri. nov.

**Type genus.** *Cacomorphocerus* Schaufuss, 1892

**Diagnosis.** *Cacomorphocerini* tri. nov. can be distinguished by the antennae with central antennomeres (from third to ninth or tenth) saucer-shaped and dilated and with terminal antennomeres filiform, and also by the high number of antennal articles (12–16). *Cacomorphocerus* Schaufuss, 1892 shows 12 articles, with the 3<sup>rd</sup>–9<sup>th</sup> saucer-shaped, while *Sucinocantharis* Kuška and Kania, 2010 shows 16 articles with the 3<sup>rd</sup>–10<sup>th</sup> saucer-shaped and widened. In addition, the general habitus, the last maxillary palpomere securiform, the pronotum without modified sides, and the mandibles without teeth confirm that the new taxon might be part of the subfamily Cantharinae. The body size ranges between 6 and 9 mm (Schaufuss, 1892; Kuška and Kania, 2010; Fanti, 2017b).

**Distribution.** *Cacomorphocerini* tri. nov. currently includes two genera: *Cacomorphocerus* from Baltic and Rovno amber and *Sucinocantharis* from Baltic amber (Kuška and Kania, 2010; Kazantsev, 2013; Kazantsev and Perkovsky, 2014; Fanti, 2017b).

Genus ***Cacomorphocerus*** Schaufuss, 1892

***Cacomorphocerus wiszniewskii*** sp. nov.

(Figs. 1–6).

**Etymology.** This species has been named after its discoverer, Andrzej Wiszniewski (Białystok, Poland), expert of amber and collector.

**Type locality.** Baltic Sea coast, Russia, Kaliningrad region.

**Type horizon.** Middle Eocene (Lutetian) (47.8–41.2 My) to Upper Eocene (Priabonian) (37.8–33.9 My).

**Type material.** Holotype: male, UCP UwB 221 (Figs. 1–6), Andrzej Wiszniewski leg. Inclusion in a yellow piece of Baltic amber with syninclusions: air bubbles, wood remains, one beetle of the family Aderidae.

**Diagnosis.** The *Cacomorphocerus* appears to be homogeneous and the pronotal shape could be useful in discriminating some species. In fact, *Cacomorphocerus wiszniewskii* sp. nov. has a sub-rectangular pronotum (1.29 mm long and 1.12 mm wide) but with



**Fig. 1.** *Cacomorphocerus wiszniewskii* sp. nov. in Baltic amber, middle Eocene to late Eocene. Holotype, UCP UwB 221, in dorsal view. Scale bar = 1 mm.  
*Cacomorphocerus wiszniewskii* sp. nov. en ambre de la Baltique, Éocène moyen à supérieur. Holotype, UCP UwB 221, en vue dorsale. Barre d'échelle = 1 mm.



**Fig. 2.** *Cacomorphocerus wiszniewskii* sp. nov. in Baltic amber, middle Eocene to late Eocene. Holotype, UCP UwB 221, in ventral view. Scale bar = 1 mm.  
*Cacomorphocerus wiszniewskii* sp. nov. en ambre de la Baltique, Éocène moyen à supérieur. Holotype, UCP UwB 221, en vue ventrale. Barre d'échelle = 1 mm.

concave sides from after base to one third of apex where is present a very small denticle and with anterior margin roundish. While *Cacomorphocerus cerambyx* has a quadrate pronotum with anterior margin narrower and surface with longitudinally impression (Schaufuss, 1892), furthermore the 9<sup>th</sup> antennomere appear more elongated and narrow than *C. wiszniewskii* sp. nov. (Korschefsky, 1939; Hoffeins, 2008). *Cacomorphocerus jantaricus* instead has a rectangular pronotum with the same concave sides and the same small denticle near the anterior corners but the anterior margin is straight and narrower and the surface has two oblong tubercles (Kuška and Kania, 2010) and furthermore the last ventrite is narrow and elongated while in *C. wiszniewskii* sp. nov. is wider and rounded.

**Description.** Male, adult, winged, entirely dark brown with sternites blackish. Body length: 7.24 mm. Elytral length: 4.98 mm, wide: 2.0 mm. Antennal length: about 4.2 mm, and length of antennomeres: I=0.40 mm, II=0.18 mm, III=0.21 mm, IV=0.22 mm, V=0.20 mm, VI=0.19 mm, VII=0.15 × 0.44 mm,

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