

# A new *Cacomorphocerus* Schaufuss, 1892 (Cantharidae) from Baltic amber

Danuta Wentzel, Enrico Bonino, Fabrizio Fanti

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A new taxon of the tribe Cacomorphocerini Fanti & Kupryjanowicz, 2018: *Cacomorphocerus thomasiwentzeli* sp. nov. is diagnosed, described and illustrated in this document. It has 12 antennomeres and is similar to *Cacomorphocerus wiszniewskii* Fanti & Kupryjanowicz, 2018 from which it differs for the antennomere VIII longer and more curved and antennomere IX more transverse and thinner.

Key words: Baltic, resin, palaeoentomology, taxonomy, new species.

Danuta Wentzel. 58256 Ennepetal, Germany; e-mail: [dwentzel@dwentzel.de](mailto:dwentzel@dwentzel.de)

Enrico Bonino. rue G. Thiriart 74, 4000 Liège, Belgium; e-mail: [enrico-bonino@outlook.com](mailto:enrico-bonino@outlook.com)

Corresponding author: Fabrizio Fanti, independent researcher. Tuscany, Italy.  
<https://orcid.org/0000-0003-2002-108X>

## INTRODUCTION

The genus *Cacomorphocerus* Schaufuss, 1892 was the first genus of fossil Cantharidae described, and initially considered similar to the living South American genus *Dysmorphocerus* Solier, 1849. For this reason then considered to belong to the subfamily Dysmorphocerinae Brancucci, 1980 (Kazantsev 2013; Fanti 2017), up to its current location in the subfamily Cantharinae (Kuška & Kania 2010; Fanti & Kupryjanowicz 2018; Kazantsev 2018). After the description of this genus it was necessary to wait over a hundred years to see another genus of soldier beetles (Kuška 1996) described with a notable increase of genera only after the 2000s. The genus *Cacomorphocerus* until now counted 11 species (Schaufuss 1892; Kuška & Kania 2010; Fanti & Damgaard 2018; Fanti & Kupry-

janowicz 2018; Bukejs et al. 2019b; Fanti & M. K. Pankowski 2019; Poinar & Fanti 2019; Fanti & M. G. Pankowski 2020; Kazantsev & Perkovsky 2020; Parisi & Fanti 2020) distributed in Baltic and Rovno ambers (Kazantsev & Perkovsky 2014; Fanti 2017; Kazantsev 2018). Here we describe a further new species with 12 antennomeres, demonstrating the abundance of the genus during the Eocene. The genus *Cacomorphocerus* was recently included in the extinct tribe Cacomorphocerini Fanti & Kupryjanowicz, 2018 which currently also includes the genera *Sucinocantharis* Kuška & Kania, 2010, *Sucinorhagonycha* Kuška, 1996, *Eridanula* Fanti & Damgaard, 2018, and *Noergardia* Fanti & Damgaard, 2018 (Fanti & Damgaard 2018; Fanti & Kupryjanowicz 2018; Fanti & M. K. Pankowski 2019).

## MATERIAL AND METHODS

The Holotype is imbedded in Baltic amber of the Kaliningrad region, Russia. Baltic amber is currently dated from the middle to upper Eocene (Bukejs et al. 2019a). The amber was cleaned and polished to improve the visibility of the inclusion. The photographs were taken using a camera Olympus E-M5MarkII with the lighting: SuperNova by Stone-Master and they were assembled with a stacking system: StackUnit by Stone-Master and a focus stacking software: HeliconFocus. Tables were processed with PhotoImpact Viewer SE program. The reconstruction of the antenna was made free-hand and digital reworked with PhotoImpact. The Holotype is deposited in the personal entomology collection of the first Author (Danuta Wentzel), in Ennepetal (Germany), with the access code 452.

## SYSTEMATIC PALEONTOLOGY

**Order Coleoptera Linnaeus, 1758**

**Superfamily Elateroidea Leach, 1815**

**Family Cantharidae Imhoff, 1856**

**Subfamily Cantharinae Imhoff, 1856**

**Tribe Cacomorphocerini Fanti & Kupryjanowicz, 2018**

**Genus †*Cacomorphocerus* Schaufuss, 1892**  
 = *Hoffeinsensia* Kuška & Kania, 2010  
 (synonymized by Kazantsev 2013: 289)

***Cacomorphocerus thomasiwentzeli* sp. nov.**

(Figs. 1–2)

**Holotype.** Male, adult specimen in Baltic amber piece, with the Catalog number 452 in the Danuta Wentzel collection (Ennepetal, Germany).

**Type locality.** Kaliningrad region, Russia.

**Type horizon.** Middle Eocene: Lutetian (47.8–41.2 Mya) to late Eocene: Priabonian (37.8–33.9 Mya).

**Differential diagnosis.** The most similar *Cacomorphocerus* Schaufuss, 1892 with 12 antennomeres is *Cacomorphocerus wiszniowski*

Fanti & Kupryjanowicz, 2018 from which the new species differs for the antennomere VIII longer and more curved and antennomere IX more transverse and thinner.

**Description.** Adult, alate. Male, based on last sternite extremely small and transverse, and based on the presence of long appendage which is probably part of the aedeagus. Body length: 6.2 mm (the body is curled up and in life probably reached about 7 mm). Entirely dark brown.

Head rounded at sides, short and slightly transverse, as large as pronotum, equipped with long setae and shallow punctuation. Eyes rounded, convex and very prominent, inserted laterally to the head in the upper part. Mandibles elongated, falciform, apparently without tooth. Maxillary palps 4-segmented with the last palpomere strongly securiform. Labial palps 3-segmented. Antennae pubescent equipped with long setae, surpassing the half of elytra and almost reaching the apex, 12-segmented, inserted almost close to the eyes; scape elongated, stout, not club-shaped; antennomere II short, narrower near the base, about 2.6 times shorter than scape; antennomeres III–IV longer than previous one, stout and slightly enlarged at apex; antennomeres V–VI slightly sturdier and shorter than previous ones, triangular shaped; antennomere VII slightly saucer-shaped and slightly asymmetrical dilated, more transverse than previous ones; antennomere VIII asymmetric, rather elongated, strongly curved and deformed, apex concave; antennomere IX asymmetric, strongly saucer-shaped, thin, strongly transverse; antennomeres X–XII very elongated and filiform, antennomere XI shorter than X and last antennomere which is the longest and has a rounded apex. Pronotum sub-rectangular that does not cover the head, longer than wide, sides straight and finely bordered, anterior margin straight and finely bordered, posterior margin very slightly undulate, surface bulged on the disc equipped with few and very long setae and without punctuation. Scutellum triangular-shaped. Elytra long which covers and surpasses the last abdominal segments, parallel sided and with rounded apex, slightly wider than

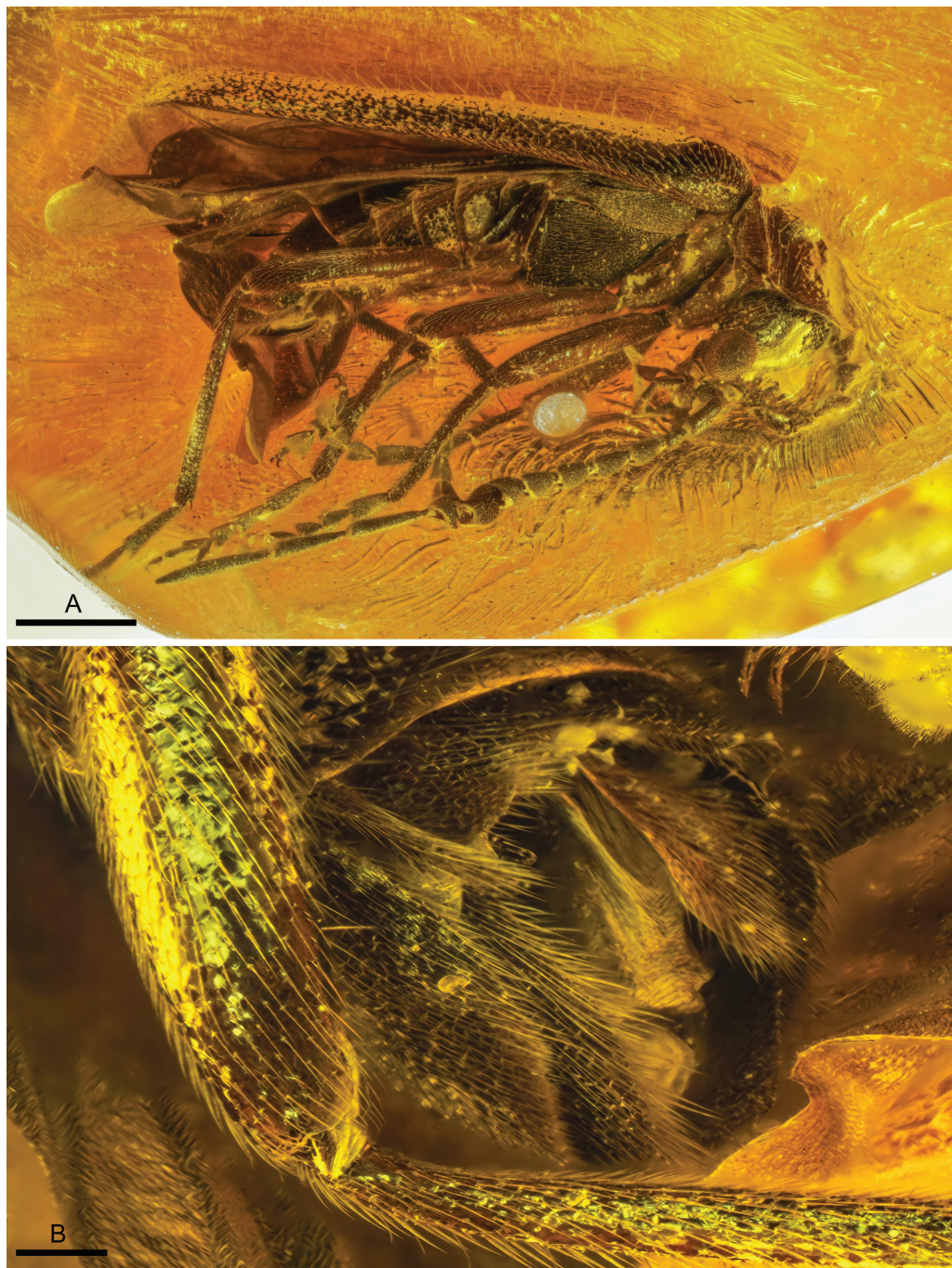


Fig. 1. *Cacomorphocerus thomasiwentzeli* sp. nov. in Baltic amber. A: Holotype, lateral view, bar = 1.0 mm; B: Holotype, detail of last abdominal segments, bar = 0.5 mm.



pronotum, surface with small punctuation and with long setae. Posterior wings semi-transparent, longer than elytra. Sternum elongated and pubescent, ventrites transverse and pubescent, last ventrite apparently very short and transverse, last tergite very broad and emarginate at apex, probably part of edeagus visible with a long and strongly pubescent appendix which is very thin at base and enlarged and rounded at apex. Legs slender, long and pubescent; coxae wide, sub-square; trochanters elongated; femurs cylindrical, straight, sturdier than tibiae; tibiae slender, cylindrical, with an apical spur which is curved and robust, pro- and mesotibiae shorter than pro- and mesofemora, metatibiae slightly longer than metafemora. Tarsal formula 5-5-5; first tarsomere elongated, slightly shorter than the second and third together; second elongated; third tarsomere almost triangular, not bilobed at sides; fourth tarsomere strongly bilobed; fifth tarsomere thin and very elongated; claws simple with an obtuse tooth at base. Female unknown.

**Etymology.** Named in honor of Thomas Wentzel, husband of the first author (Danuta Wentzel).

**Syninclusions.** Stellate hairs, botanical remains and air bubbles.

**Systematic placement.** The last maxillary palpomere securiform, tarsal formula 5-5-5, elongated elytra, pronotum without lobes and teeth at sides, and the antennae 12-segmented with

some antennomeres saucer-shaped, unequivocally make the new species belong to the subfamily Cantharinae Imhoff, 1856 and to the tribe Cacomorphocerini Fanti & Kupryjanowicz, 2018 (Brancucci 1980; Ramsdale 2002; Fanti & Kupryjanowicz 2018; Fanti & Pankowski 2019; Poinar & Fanti 2019; Kazantsev & Perkovsky 2020). The new species belongs to the genus *Cacomorphocerus* Schaufuss, 1892 based on its 12 antennomeres with some of these saucer-shaped and antennomeres 10–12 filiform, tarsomere 3 straight and not bilobed (Bukejs et al. 2019b).

**Remarks.** Piece of amber that measures 1.88x 1.2 cm. The inclusion is complete, except for the right metathoracic leg preserved up to part of the third tarsomere. The left side is poorly visible, and therefore also the last antennomeres of the left antenna.

## DISCUSSION

The tribe Cacomorphocerini is currently extinct but was frequent in the Eocene, and is characterized by the particular antennial shape with supernumerary articles, often saucer-shaped. Recently, however, some species with filiform antennae and / or with 11 antennomeres have been described, as in the probable common ancestor of the tribe Cacomorphocerini and as already considered for the beetles in general

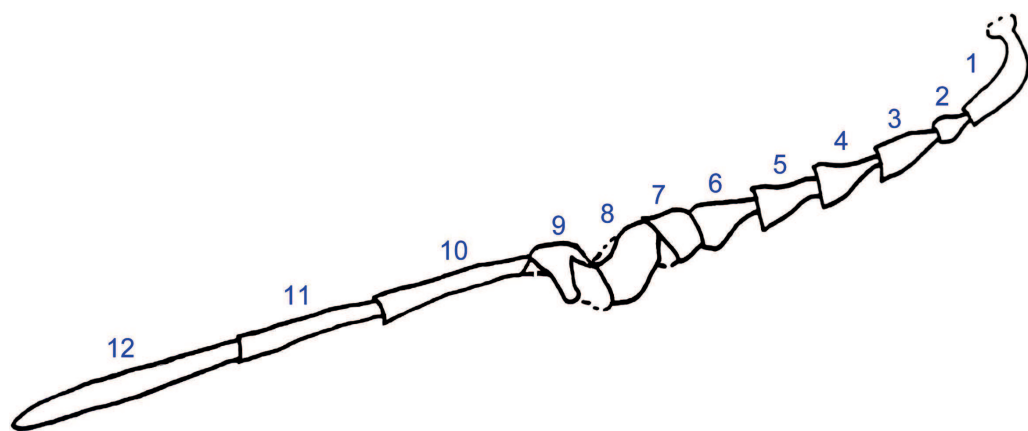


Fig. 2. *Cacomorphocerus thomasiwentzeli* sp. nov. in Baltic amber. Reconstruction of antenna.

(Fanti & M. K. Pankowski 2019). The differences in the shape of the antennae suggest that the genus *Cacomorphocerus* is polyphyletic (Fanti & M. G. Pankowski 2020). Furthermore, it is also interesting to note that the first antennomeres up to the “central” ones of the various taxa are tendentially saucer-shaped, with an increase in the number of antennomeres, which become filiform, subsequently to these: antennomeres filiform X–XII or IX–XII (IX–XI in the taxa with 11 antennomeres) in *Cacomorphocerus*, XI–XVI in *Sucinocantharis*, X–XVII in *Eridanula* and X–XIX in *Noergaardia* (Schaufuss, 1892; Kuśka & Kania 2010; Fanti & Damgaard 2018; Bukejs et al 2019b; Poinar & Fanti 2019; Kazantsev & Perkovsky 2020). It appears evident despite specimens with filiform antennae that the *Cacomorphocerini* are a particular group and lineage in the panorama of the Cantharidae.

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