

The first Eocene species of *Bacanius* (Coleoptera: Histeridae: Dendrophilinae) from Rovno amber

Первый эоценовый вид карапузиков рода *Bacanius* (Coleoptera: Histeridae: Dendrophilinae) из ровенского янтаря

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КЛЮЧЕВЫЕ СЛОВА: карапузики, *Bacanius kirejtshuki*, новый вид, ровенский янтарь.

ABSTRACT. Description of new species of clown-beetles, *Bacanius kirejtshuki* **sp.n.** from Rovno amber, is given. It's first fossil Bacaniini and the first fossil species of microhisterid ecological group. The place of new species in the tribe is discussed.

РЕЗЮМЕ. Описывается новый вид *Bacanius kirejtshuki* **sp.n.** из ровенского янтаря. Это первый ископаемый карапузик трибы Bacaniini и первый ископаемый представитель экологической группы микрогистерид. Обсуждается систематическое положение нового вида в трибе.

Introduction

Histeridae is relatively large family with eleven subfamilies and more than 4260 species [Mazur, 2011; Kovarik, Caterino, 2016]. They distributed in all terrestrial biomes except tundra, with maximal diversity in tropics. Toward the poles the number of species strongly decline (until 50–60 species in boreal forests). Clown beetles are very diverse morphologically and ecologically. Mostly they are predators that consume larvae of flies and xylobiont beetles in decaying substrates of animal and plant origin, under bark of trees. There is peculiar group associated with nests and burrows of mammals and birds. Inhabitants of ant's and termite's nests are various and specialized, two subfamilies of the obligate inquilines include more than 500 species. The diverse psamphilic species distributed in all desert's areas.

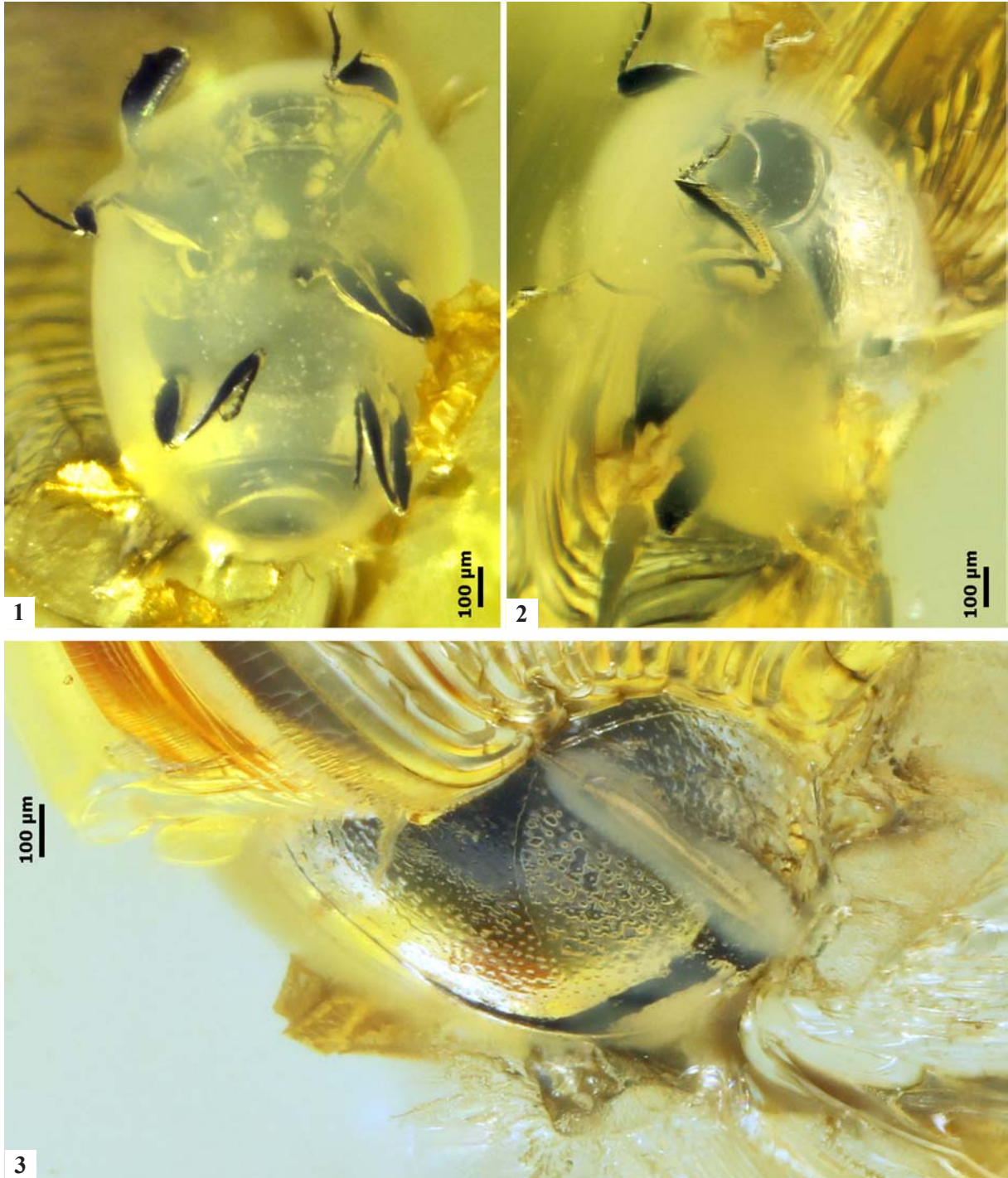
At present, 20 fossil histerid species are described [Heer, 1862; Theobald, 1935; Chatzimanolis et al., 2006; Caterino et al., 2015; Caterino, Maddison, 2018; Poinar et al., 2009; Alekseev, 2016; Degalier et al., 2019; Zhou et al., 2019; Jiang et al., 2020]. Several extinct species are reported, but not described [Klebs, 1910, Duncan et al., 1998]. Systematical position of some species in taxonomical system of the family is disputable. The earliest them belong to mid-Cretaceous (Burmese amber), the later of the remains from different ages before the Pliocene. The species described below belongs to nominative genus of Bacaniini. It includes 158 species, of which about five sixth are from tropical regions. Bacaniini are very small beetles with uniform habitus, belonging to the ecological group of microhisterids. They inhabit trees of varying degrees of decomposition and decaying vegetation, more than 10 troglobionts are described (nearly half of its in subtropical regions), some species are collected in nests of ants and termites. Most of them feed on fungal spores [Kovarik, Caterino, 2016]. Fossil representatives of the tribe never have been named; one specimen was determined as *Bacanius?* by Edmund Reitter [Klebs, 1910], but the collection of Klebs was mostly lost in the time of Second World War.

Material and methods

Illustrations were prepared with digital camera Canon EOS 6d and microscope Zeiss AxioScope A1. Measurements are abbreviated as follows: PEL — length

between anterior angles of pronotum and apices of elytra, PL — pronotal length, EL — length of elytron along suture line, APW — pronotal width across anterior angles, PPW — width between posterior angles of pronotum, EW — maximal width between outer margins of elytra, H — distance from metaventricle to maximal high of elytra, measured in lateral position. Num-

bers in brackets equal the distances between punctures (in their diameters). The piece was mined in Rovno region, most probably in Klesov or Vladimirets and Zarechnoje districts [see Martynova et al., 2019], e.g. Veselukha floodplaine [see Lyubarsky, Perkovsky, 2020]. Holotype is housed in the amber collection of the I.I. Schmalhausen Institute of Zoology, Kiev (SIZK).



Figs 1–3. *Bacanius kirejtshuki* sp.n.: 1, 3 — habitus, ventral and dorsal view; 2 — head, lateral view.

Рис. 1–3. *Bacanius kirejtshuki* sp.n.: 1, 3 — габитус, снизу и сверху; 2 — голова, сбоку.

Systematic paleontology

Family Histeridae Gyllenhal, 1808

Subfamily Dendrophilinae Reitter, 1909

Tribe Bacaniini Kryzhanovskij, 1976

Genus *Bacanius* J.L. LeConte, 1853*Bacanius kirejtshuki* Sokolov et Perkovsky, **sp.n.**

Figs 1–5.

MATERIAL. Holotype SIZK UA-28067.

DESCRIPTION. Habitus as illustrated (Figs 1–5). PEL = 1.2 mm. H = 0.6 mm. Colour dark brown. Dorsal surface without microsculpture. Broadly oval, moderately convex. Widest at elytral humeri. Head retracted in thorax, relatively big, form typical for the tribe Bacaniini (Figs 2, 4). Frons and epistoma with uniform punctures coarse and sparse (2–3). Frons separate from epistoma by distinct stria, arcuate inwardly to vertex. First antennal segment poorly distinguishable, rest parts of antenna retracted in thorax.

PL = 0.38 mm. PPW = 0.9 mm. APW = 0.8 mm. PPW = 0.9 mm. Small part of pronotum visible only, impossible define features of punctures on the disc (Figs 2, 4). Lateral surface with fine and sparse (2–4) punctures. Marginal pronotal stria complete laterally and anteriorly. Antescutellar stria absent. Scutellum not visible.

EW = 1.0 mm. Elytral punctures fine and sparse (2–4), distinguishable partly from middle to apex. Impossible to discern punctures in basal part of elytra and along suture. Outer subhumeral stria well impressed, complete, prolong to base. Epipleural stria distinct, situated closer to subhumeral striae. Prosternal lobe broad and prominent, with conspicuous sparse punctures (Figs 1, 5). Mesometasternal suture

looks like line of coarse punctures. Punctures of meso- and metasternum invisible mostly. Lateral parts of metasternum with various punctures, relatively dense (1.0–1.5). Hind edge of metaventrite arcuate to abdomen. There are outer and inner striae of 1st abdominal ventrite. Its surface coarsely punctured laterally and along anterior margin, rest part finely punctured. Probably pygidium smooth or with very weak punctures.

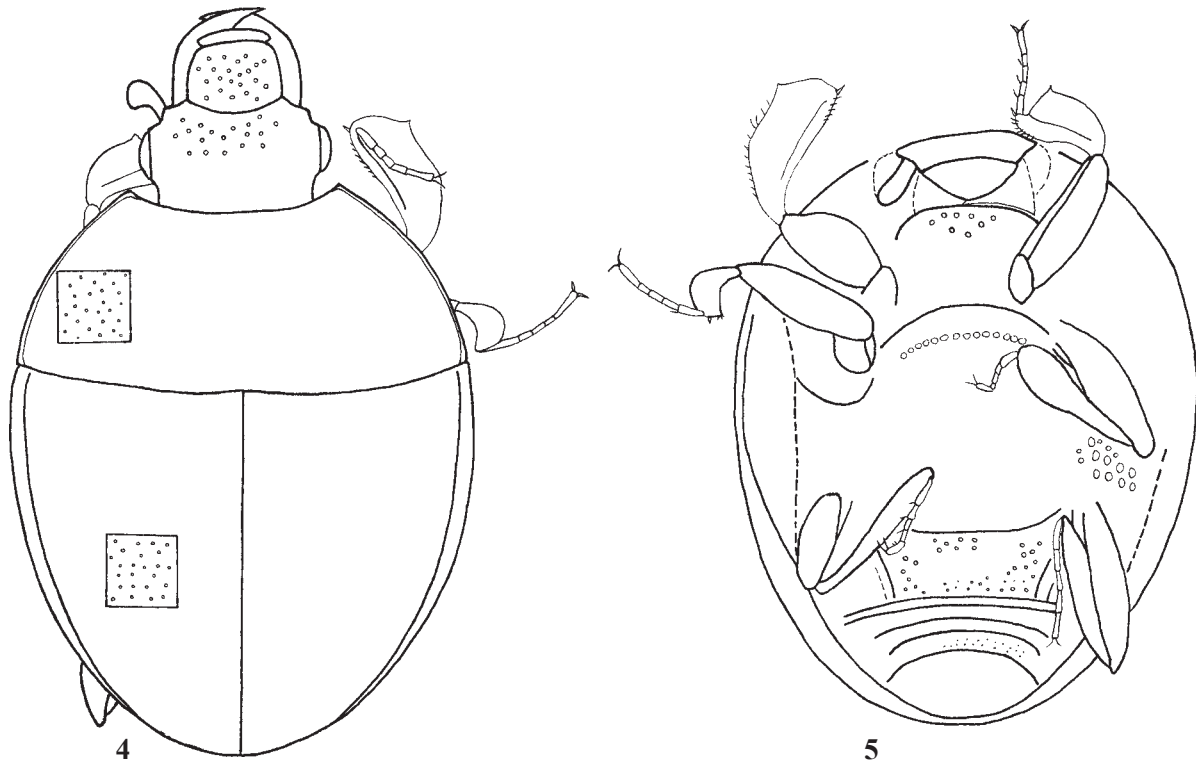
Legs of typical form for Bacaniini. Foretibia broadened with unique tooth near distal angle. Mesotibia and metatibia narrowed, not strongly broadened apically, mesotibia only with several fine spurs on the apex.

COMPARATIVE REMARKS. The described species belongs to Bacaniini by not truncate elytra that covered exposed tergites, dorsal striae absent. Generic system of *Bacanius* is developed not so good now, many extant genera of Bacaniini consist with species of former *Bacanius* sensu stricto. Nonetheless new species has all key characters for attribute it to genus *Bacanius*. In 1984 Slawomir Mazur established subgenus *Gomyister* Mazur, 1984, distributed mostly in tropical areas of the Old and New World [Mazur, 1984]. They can be recognized by complete subhumeral stria and absence of antescutellar stria. *Bacanius kirejtshuki* has that features, so we suppose to place it close to recent *Gomyister*.

ETYMOLOGY. The new species is dedicated to coleopterist Dr. Sc. Alexander G. Kirejtshuk.

Discussion

Among 158 species of the tribe Bacaniini only 13 species reach the regions with the warm temperate climate [Mazur,



Figs 4–5. *Bacanius kirejtshuki* **sp.n.**, habitus: 4 — dorsal view; 5 — ventral view.

Рис. 4–5. *Bacanius kirejtshuki* **sp.n.**, габитус: 4 — сверху; 5 — снизу.

2011]. Moreover, five sixth of all these species are restricted by tropical regions in the distribution. Thus, with high probability we can assign the new species to a group of taxa which had the northern distribution boundary at the late Eocene lying along the southern coast of the Subparathetys [Perkovsky, 2018; Dubovikoff et al., 2020; Legalov et al., 2018, 2019, and references therein]. Many thermophile insects have the same northern boundary of the distribution. It explains the absence of species shared by both, Rovno and Baltic amber, within the families of the Rovno amber fauna with high portion of the thermophile taxa, e.g. among 14 bethylid species registered in Rovno amber one species only from extant Chilean genus *Lytopsenella* Kieffer, 1911 was recorded also in the Baltic amber [Perkovsky, 2018; Colombo et al., 2020; our unpublished data], and many of these bethylid genera are strongly thermophile [Colombo et al., 2020].

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