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NEW DATA ON THE GENUS *SUCINOPTINUS* (COLEOPTERA, PTINIDAE) FROM ROVNO AMBER

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New Data on the Genus Sucinoptinus (Coleoptera, Ptinidae) from Rovno Amber. Bellés, X., Perkovsky, E. E. — Study of five examples of spider beetle inclusions from Rovno amber revealed that at least three of these spider beetles belong to the genus *Sucinoptinus* Bellés et Vitali, 2007, of them, *S. rovnoensis* sp. n. (most probably from Klesov) and *S. brevipennis* sp. n. from Dubrovitsa are described. *S. rovnoensis* is similar to the previously known *S. bukejsi* Alekseev in having the same general structure of pronotum and elytra, differing from it by the morphology of pronotal sides, which are only slightly rounded and practically not constricted near the base, whereas in *S. bukejsi* the sides are well rounded leaving a slight but clear constriction near the base. *S. brevipennis* is similar to *S. bukejsi* Alekseev and *S. sucini* Bellés et Vitali in having the same general structure of the prothorax, but differing from them in having much shorter elytra. Addition of these two new species to the two previously known, *S. sucini*, from the eastern Baltic Sea coast, and *S. bukejsi*, from Kaliningrad Region, indicates that the genus *Sucinoptinus* was much more diverse and widespread in Late Eocene forests than former reports suggested.

Key words: Coleoptera, Ptinidae, Ptininae, Rovno amber, Baltic amber, Late Eocene, fossil beetles.

Introduction

The oldest citation of fossil spider beetles (Ptinidae Ptininae) in amber inclusions was published in 1845, when Georg Karl Berendt mentioned *Ptinus* sp. from Baltic amber (see Larsson, 1978). Larsson (1978) also mentions that the classical entomologist Edmund Reitter had seen 3 *Niptus* sp. and 16 *Ptinus* sp. in the Baltic amber collection of Richard Klebs from Eastern Prussia. Thereafter, most of the references refer to Baltic amber and identify the spider beetle simply as "Ptinidae", whereas in other cases it is mentioned the genus *Ptinus* or *Niptus* without further specific identification (Larsson, 1978; Spahr, 1981; Bellés, 2010). Concerning the Middle Miocene Dominican amber, there are few published records of spider beetles. The first reference was published by Poinar (1992), without going farer in the taxonomic identification, and the family Ptinidae (in the sense of Ptinidae Ptininae) is mentioned again in Poinar and Poinar (1999).

In any case, fossil Ptinidae Ptininae in amber inclusions are rather rare, as shown by the quantitative data provided by Baltic amber samples, which have been the most thoroughly studied (Larsson, 1978; Spahr, 1981; Poinar, 1992; Poinar and Poinar, 1999) and where spider beetles represent only 0.4 % of the total beetles kept in museums (Hieke, Pietrzeniuk, 1984). It is therefore not surprising that, until now, only six species had been formally described from amber inclusions: *Sucinoptinus sucini* Bellés et Vitali (2007), *S. bukejsi* Alexeev (2012) and *Ptinus* (*Gynopterus*) *inclusus* Bellés et Vitali (2007), from Baltic provenance, and *Oviedinus hispaniolensis* Bellés (2010), *Electrognostus intermedius* Philips et Mynhardt (2011) and *Okamninus annae* Mynhardt et Philips (2013), from Dominican amber. Conversely, no spider beetles had been studied yet from amber inclusions from Rovno. Rovno amber is localized in NW Ukraine and is roughly contemporaneous to Baltic amber, both Late Eocene in age and containing similar but distinct insect faunas. Both ambers have many genera and dominant terrestrial species in common, still 49 Rovno amber genera and more than 210 species are unknown from Baltic amber (Perkovsky et al., 2007, 2010, 2015; Fedotova, Perkovsky, 2015; Kononova et al., 2015; Nadein et al., 2015; Perkovsky, 2015; Perkovsky, Sukhomlin, 2015). The present contribution reports the study of five spider beetle specimens from Rovno amber, and comes to partially fill this

gap. The study shows that most of the species found belong to the genus *Sucinoptinus* Bellés et Vitali, 2007, which indicates that this genus was much more diverse and widespread in Late Eocene forests than previous reports suggested.

Material and methods

One studied specimen is from Dubrovitsa (Vol'noje quarry), two from Klesov (Pugach quarry) and two specimens were selected from material of total weight 12.3 kg mostly from Klesov (Pugach) and Dubrovitsa (Vol'noje) that had been acquired in 2001–2002 at the factory "Ukramber" (Rovno): at least 70 % of the amber was found in Pugach. All specimens are deposited in the collection of the Schmalhausen Institute of Zoology of the National Academy of Sciences of Ukraine, Kyiv (SIZK).

The photographs were taken by V. A. Kolyada under Leica M165 stereomicroscope, using a Leica DFC 425 camera (Paleontological Institute, Moscow) and by V. Yu. Nazarenko under Leica M165 stereomicroscope (SIZK).

We were not able to study the holotype of *Sucinoptinus bukejsi*, but V. I. Alekseev provided us with a series of published and unpublished photographs of it that allowed the comparisons.

Sucinoptinus from Rovno amber

Sucinoptinus rovnoensis sp. n.

Material. Holotype. Possibly female, only thorax and elytra present. SIZK UA-335, Rovno amber, Late Eocene.

Description. Length (pronotum plus elytra): 1.5 mm. Relatively robust, rounded-sided; color brownish (fig. 1, *1*). Pronotum slightly wider than long and neatly wider than a single elytron; apical margin widely convex anteriorly; sides only slightly rounded, practically not constricted near the base, moderately convex at the disk and showing a quite apparent semicircular depression in the posterior third; surface covered with dense tubercles, oval and large, specially within the semicircular depression, where they are almost as large as half the size of the scutellum; pubescence formed by short semi-recumbent hairs inserted between the tubercles (fig. 1, *1*). Scutellum triangular, as long as wide. Elytra slightly round-sided and relatively short, 1.35 as long as wide, but clearly longer than twice the length of the pronotum; humeri prominent; elytral surface serially punctuated by elongated strial punctures, leaving an interstriae interval about twice wider as the width of the striae; pubescence formed by recumbent short setae inserted in the punctures (with a length somewhat longer that the puncture), semirecumbent and moderately long (somewhat longer than those of the punctures) setae inserted in the intervals and evenly distributed, and erect and still longer setae sparsely distributed in the interstriae of the apical part (fig. 1, *1*).

Diagnostic characters. The new species is similar to *S. bukejsi*, from amber inclusions found at Yantarny (formerly Palmnicken) in the Kaliningrad region, Russia (Alekseev, 2012) in having the same general structure of pronotum and elytra, but differing from this species by the morphology of the pronotum, with sides only slightly rounded and practically not constricted near the base, whereas that of *S. bukejsi* has the sides well rounded leaving a slight but clear constriction near the base. Moreover, the semicircular depression of the posterior third of the pronotal disk of *S. rovnoensis* is not present in *S. bukejsi*, which shows a regularly convex pronotal disk, with a depression in the posterior third only slightly marked. The large tubercles forming the surface of the semicircular depression of *S. rovnoensis* are neither present in *S. bukejsi*, which shows a type of tubercles smaller and evenly distributed. *S. sucini* Bellés et Vitali (2007) also has a semicircular depression in the posterior third of the pronotal disk, but it is narrower and the tubercles of the sculpture within it are much smaller and rounded in shape.

Etymology. The specific name refers to Rovno region, the geographical origin of the holotype.

Sucinoptinus brevipennis sp. n.

Material. Holotype. Possibly male. SIZK D-2295, Dubrovitsa, Rovno amber, Late Eocene (fig. 1, *2*). Syninclusions: Mycetophilidae, Acari (Parasitengona), numerose stellate hairs.

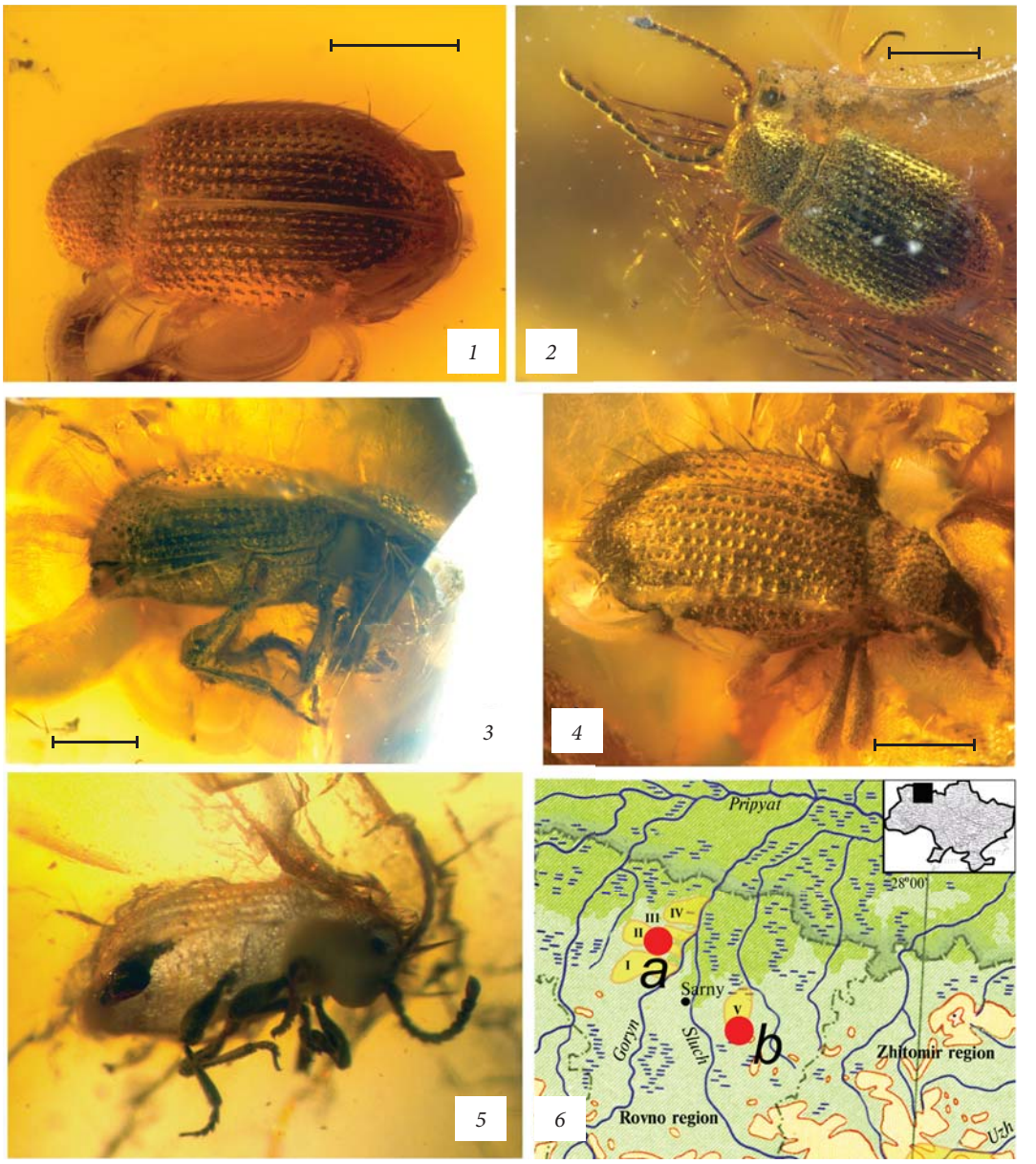

Fig. 1. *Sucinoptinus* from Rovno amber: *1* — *Sucinoptinus rovnoensis* sp. n. Holotype, SIZK UA-335; *2* — *Sucinoptinus brevipennis* sp. n. Holotype, SIZK D-2295; *3* — *Sucinoptinus* sp.? SIZK UA-284; *4* — *Sucinoptinus* sp.? SIZK K-6067; *5* — *Sucinoptinus*? sp.? SIZK K-25483; *6* — Rovno amber deposits with *Sucinoptinus* inclusions: *a* — Dubrovitsa, *b* — Klesov. Scale 0.5 mm.

Description. Length: 1.6 mm. Slender, parallel-sided; color brownish-piceus (fig. 1, *2*). Head finely punctuated and pubescent; interantennal space narrow and rather flat; eyes hemispherical, quite prominent and finely faceted. Antennae eleven segmented, slender and long, slightly longer than the elytral length, covered with semierect pubescence; antennomere proportions according to the formula: 7–3–4–4–4–4–4–4–4.5–5–8.5 (fig. 1, *2*). Pronotum slightly longer than wide and wider than a single elytron; apical margin widely convex anteriorly, partially concealing the head; sides slightly rounded, only slightly

constricted near the base, moderately convex at the disk and showing a quite apparent transversal depression in the posterior third; surface irregularly sculptured in the anterior third, with round, small tubercles in the disk, and with small elongated tubercles in the posterior third transversal depression; pubescence formed by short semi-recumbent hairs evenly distributed (fig. 1, *2*). Legs short and robust covered with short recumbent pubescence; tarsi relatively long, nearly as long as tibiae; mesotarsi with tarsomere proportions according to the formula: 5–1.5–1.5–1–5. Scutellum triangular, as long as wide. Elytra subparallel and short, only slightly longer than twice the length of the pronotum; humeri prominent; elytral surface serially punctuated by elongated strial punctures, leaving an interstriae interval about twice wider as the width of the striae; pubescence formed by semirecumbent short setae inserted in the punctures (with a length similar to that of the puncture) and erect and moderately long (somewhat longer than those of the punctures) setae inserted in the intervals (fig. 1, *2*).

Diagnostic characters. *S. brevipennis* is similar to the previously known species, *S. bukejsi* and *S. sucini* in having the same general structure of the prothorax, but differing from these species in having much shorter elytra, with a proportion length of the pronotum (LP)/length of the elytra (LE) = 2.1. This clearly differs from the proportion found in *S. sucini* (LE/LP = 2.7), in *S. bukejsi* (LE/LP = 2.6, according to measurement made on the pictures sent by V. Alekseev) and in *S. rovnoensis*, described above, where LE/LP = 3.0.

Etymology. The specific name refers to the shortness of the elytra, which is the most typical feature of the new species.

Sucinoptinus sp.?

Material. Two specimens, SIZK UA-284, Rovno amber, Late Eocene and SIZK K-6067, Klesov, Rovno amber, Late Eocene.

The inclusion labeled UA-284 contains a well recognizable spider beetle belonging to the genus *Sucinoptinus* sp. The specimen is practically complete except the antennae and parts of the legs, but its orientation in the inclusion makes difficult a specific identification. However, it looks like a *S. rovnoensis*, but with the typical semicircular depression on the posterior third of the pronotum somewhat deeper, and with the strial punctures of the elytra somewhat broader, which leave the interstriae intervals only slightly wider than the punctures (fig. 1, *3*). The specimen SIZK K-6067 is also practically complete, but again the orientation makes difficult a complete identification. It looks very similar to the specimen UA-284, but with the pronotum slightly more transversal and the elytra somewhat shorter (fig. 1, *4*).

Sucinoptinus? sp.?

Material. SIZK K-25483, Klesov, Rovno amber, Late Eocene.

The inclusion contains a spider beetle, with only the ventral and right lateral parts preserved. Moreover, the remains are affected by a sort of a cloudy secretion (fig. 1, *5*) that makes more difficult the observations. However, the lateral part of the prothorax showing a characteristic depression near the base in the dorsal part, suggests that it belongs to the genus *Sucinoptinus*.

Comments on the diversity and distribution of *Sucinoptinus*

The new data reported herein indicates that the genus *Sucinoptinus*, up to now containing four species, counts among the more diverse of the Baltic amber beetle fossils. Only 10 genera of Baltic amber beetles have more than 4 species described, the most diverse

of them being *Pleurarthropterus* (Coleoptera, Carabidae, Paussinae), with 12 known species (Alekseev, 2013). The two new species described in the present paper enlarge the distribution of the genus some 500 Km to the southeast (fig. 1, *6*) of the previous distribution based on *S. sucini* and *S. bukejsi*, which are found on the Baltic Sea shore.

The diversity and widespread distribution of *Sucinoptinus* amber fossils highlights the remarkable evolutionary success of this genus in Late Eocene European forests. This suggests that *Sucinoptinus* species might be typical forest insects with xylophagous habits. At present, practically there are not true wood-borer larvae among spider beetles (Ptininae), the only known exception being *Ptinus* (*Pseudoptinus*) *lichenum* Marsham, 1802, whose larvae is able to bore extensive galleries in *Juniperus* trees (Bellés, 1980). Crowson (1955) had postulated that the loss of wood-boring habits was a fundamental factor conditioning the divergence of spider beetles from anobiid beetles, whose larvae are commonly xylophagous. Therefore, *Sucinoptinus* species are perhaps representatives of xylophagous ancestors from which derived modern, typically scavengers, spider beetles.

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