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A new species of *Orchesia* LATREILLE, 1807 from Baltic amber (Coleoptera: Melandryidae)

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ABSTRACT. A new fossil false darkling beetle, *Orchesia (Orchestera) turkini* sp. nov. from Baltic amber (Eocene) of the Kaliningrad region of Russia is described and compared with the closely related fossil species *O. (Orchestera) rasnitsyni* NIKITSKY, 2011. The newly described species differs morphologically from the latter in the structure of its maxillary palpi, proportions of antennomeres, and possessing an elytral surface without rugosity in the basal third.

Key words: Coleoptera, Melandryidae, *Orchesia turkini*, new species, Baltic amber, Eocene.

INTRODUCTION

Knowledge of the beetle fauna of Baltic amber (succinite) must be regarded as still inadequate. A study of Coleoptera from the Baltic amber is necessary for resolving problems of the evolution and phylogeny of extant groups and also to understanding the present-day distribution of recent taxa.

Orchesia LATREILLE, 1807 is a worldwide distributed genus including approximately 55 recent species in three subgenera: *Clinocara* C.G. THOMSON, 1859, *Orchesia* s.str. and *Orchestera* GUILLEBEAU, 1887.

The inclusions from Baltic amber belonging to *Orchesia* LATREILLE, 1807 were mentioned already in the XIX century by BERENDT (1845–1856) and HELM (1896). According to LARSSON (1978), the old Klebs collection of Baltic amber of Eastern Prussia contains a total of 44 specimens of Melandryidae, including nine *Orchesia* and three near *Orchesia*. Moreover, two *Orchesia* specimens are housed in the Zoological Museum of Copenhagen (LARSSON 1978), two specimens of *Orchesia* are housed in

the Museum of Natural History of ISEA, Kraków (KUBISZ 2000) and one specimen of *Orchesia* is housed in the Museum of amber inclusions, Gdańsk (KUBISZ 2001). Although most references in the literature contain not more than a generic attribution without any descriptions, according to HIEKE & PIETRZENIUK (1984), the false darkling beetles are not particularly rare in Baltic amber, representing about 2% of the total beetle inclusions deposited in museums. The proportion of melandryid beetles amounts to about 2.8% of the beetles recorded from Baltic amber (ALEKSEEV & TURKIN 2007). However, at the present there is only one melandryid species described from Baltic amber, *Abderina helmi* SEIDLITZ, 1898 (Serropalpini). Only one fossil species from the tribe Orchesiini has been described until now – *Orchesia (Orchestera) rasnitsyni* NIKITSKY, 2011, from the Upper Eocene Rovno amber.

In the current paper, a new species of the genus *Orchesia* is described from Baltic amber, which is usually attributed to the Upper Eocene, although other time estimates have been made (even the Lowermost Eocene) (WEITSCHAT & WICHARD 2010). It is the second described fossil species of this genus.

MATERIAL AND METHODS

A piece of amber was collected from the Baltic seacoast near Yantarny settlement, Kaliningrad region, Russia, in the surf zone in December 2011. This piece with the inclusion was polished by hand to enhance the dorsal, ventral and frontal views of the included specimen. The photos were taken with a Stemi 2000-CS digital camera using a Zeiss stereomicroscope.

SYSTEMATIC PART

Family Melandryidae LEACH, 1815
Subfamily Melandryinae LEACH, 1815
Tribe Orchesiini MULSANT, 1856
Genus *Orchesia* LATREILLE, 1807
Subgenus *Orchestera* GUILLEBEAU, 1887

***Orchesia (Orchestera) turkini* sp. nov.**
(Figs. 1–2)

MATERIAL EXAMINED

Holotype: Nr. AWI-015; probably male (protarsi dilated); Yantarny village [formerly Palmnicken], Sambian [Samland] peninsula, Kaliningrad region, Russia; Baltic amber; Age: Upper Eocene (Prussian Formation). The type will be given to the Paleontological Institute, Russian Academy of Science (Moscow) for permanent preservation.

The beetle inclusion is preserved in a polished piece of transparent amber with a yellowish shade without any further fixation. The piece is elongate, tetrahedral in form, with maximum length 14.4 mm and maximum width 11.2 mm. The animal syninclusions in the studied amber piece are represented by one specimen of Cecidomyiidae

(Diptera: Nematocera) of length 1 mm and the plant syninclusions are represented by five stellate hairs of oak.

DIFFERENTIAL DIAGNOSIS

The newly described species should be considered as a member of subgenus *Orchestera* GUILLEBEAU, 1887. This is based on two morphological features diagnostic for the subgenus: 4-segmented antennal club and comparatively narrow frontal area between eyes. *O. (Orchestera) turkini* sp. nov. differs from the closely related fossil species *O. (Orchestera) rasnizyni* NIKITSKY, 2011, in the structure of the maxillary palpi, proportions of the antennomeres, and in the absence of transversal rugosity in the basal third of the elytra, which is present in the species *O. rasnizyni*.

The new species is most similar to the recent *O. (Orchestera) luteipalpis* MULLSANT et GUILLEBEAU, 1857 but differs from it in possessing longer metatibial spurs (in *O. luteipalpis* they are 1.33-1.40 times shorter than the first metatarsomere).



1, 2. *Orchesia turkini* sp. nov.: 1 – ventral view, 2 – latero-dorsal view

DESCRIPTION

Length ca. 3.25 mm, width ca. 0.91 mm. Oblong, spindle-shaped; dorsal surface unicolorous dark brown, underside and most part of legs piceous, tarsi and head appendages light brown. Dorsally and ventrally covered with short, dense, recumbent hairs. Pronotum and elytra with fine, dense, relatively homogenous punctures.

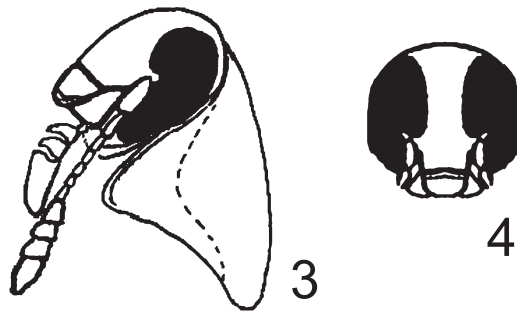
Head (Figs. 3–4) inflexed, finely punctate. Eyes lateral, large, reniform and slightly prominent, with distinct facets larger than punctures on head. Antennae 11-segmented, clavate, inserted between and close to the inner margin of the eyes; short, reaching base of elytra; antennal club 4-segmented, relatively compact; relative lengths of antennomeres 4–4–4–3–2–2–2–3–3–3–5. Interantennal space narrow, about twice the length of the diameter of the eye. Mandibles small, subtriangular. Maxillary palpi large (2.3 times shorter as antenna), 4-segmented: basal palpomere minute, palpomeres 2 and 3 approximately equal in length, triangular, palpomere 4 very large, cultriform; relative lengths of palpomeres 2–5–5–14.

Pronotum transverse, approximately 1.9 times as wide as long, broadest at base, lateral sides weakly rounded, gradually narrowed to anterior margin, posterior angles acute; with 2 shallow basolateral impressions.

Scutellum clearly visible, transverse and rectangular. Elytra unicolorous; punctures irregular, fine and dense (as they on the pronotum); 3 times longer than wide (length ca. 2.7 mm, max. width ca. 0.9 mm); with clearly visible complete sutural stria reaching apex of elytra. Hind wings well developed.

Ventral surface covered with fine, dense and relatively homogenous punctures. Abdomen with five ventrites, relative lengths of ventrites 25–25–17–13–15. Epipleura of elytra wide in anterior part and gradually narrowing posteriorly but reaching apex of elytra.

Legs moderately long; hind legs most robust, metatibiae flattened, 1.15 times shorter than mesotibiae. Tibiae spurred; mesotibiae with two spurs of different lengths (proportions 2:3); metatibiae with two equally long spurs (1.18 times shorter than first metatarsomere), serrate. Tarsal formula 5–5–4. Tarsi about 2/3 as long as tibiae; protarsi distinctly dilated. Claws simple, small and sharp.



3, 4. *Orchesia turkini* sp. nov.: 3 – pronotum and head with maxillary palpus and antenna, lateral view, 4 – head, frontal view

ETYMOLOGY

The specific epithet is a dedication to our colleague, Dr. Nikolay I. TURKIN (Kaliningrad, Russia), collector of this piece of amber, and an enthusiast and specialist in Baltic amber.

DISCUSSION

At present, *O. turkini* sp. nov. is the second known species of the genus and the third described melandryid beetle to be reported from Eocene amber. It is very similar in habitus and apparently closely related to a fossil species from the Rovno (Klesov) amber, *O. rasnitzyni*, but differs from that species in some morphological characteristics. Based on two descriptions of *Orchesia* originated from Eocene deposits of Europe, it would be premature to make conclusions about the possible phylogeny of the genus and the tribe. Previously, it could be supposed, that the morphological features of *Orchestera* species are plesiomorphic, and this subgenus is of comparatively more ancient origin in comparison with the more modern subgenera, *Orchesia* s.str and *Clinocara*.

The false darkling beetles are either xylophagous (Serropalpini and Melandryini) or fungivorous (Orchesiini), although arboreal bracket fungi may constitute a significant portion of the diet of the xylophagous species too. The “amber forests” were situated at the boundary separating subtropical and temperate climatic zones; the resin-producing tree *Pinus succinifera* was associated with an extensive and varied dendroflora, which included different conifers, broad-leaved trees (oaks, chestnut, beech, magnolia etc.), several subtropical palms and others. Polypore fungi are also known from amber (LARSSON 1978), and they have a very close relationship with modern forest fungi, and in fact they have even been described as forma “*succinea*” of recent species (*Trametes pini*, *Polyporus mollis*, *P. vaporarius*). In all cases of trophic links, various melandryid species could be expected by future researches from the fossilized “communities” of the Eocene forests of Northern Europe.

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