



<http://dx.doi.org/10.11646/zootaxa.3635.3.5>

<http://zoobank.org/urn:lsid:zoobank.org:pub:E36F75A7-73F4-4A4E-869A-427C2EE788B1>

Three new caddisflies species of the fossil genus *Archaeotinodes* (Insecta: Trichoptera: Ecnomidae) from the Baltic Amber

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Abstract

Three new caddisflies species of the fossil genus *Archaeotinodes*: *Archaeotinodes petropolitana* **sp. nov.**, *Archaeotinodes regiomontana* **sp. nov.**, and *Archaeotinodes rossica* **sp. nov.** from the Baltic amber (Upper Eocene, 40 million years old), are described and illustrated.

Key words: ecnomids, Eocene, paleontology

Introduction

The Late Eocene Baltic Amber fauna is one of the richest fossil assemblages in the world (Rasnitsyn & Quicke 2002). Caddisflies are represented by 22 families and more than 180 species in Baltic Amber. As a result, almost 3% of all insect inclusions in the Baltic amber are the Trichoptera (Wichard *et al.* 2009).

The family Ecnomidae is represented in the recent fauna by more than 350 species. Fossil representatives of the family Ecnomidae are known only from the European ambers (Paleogene) where this family is represented by the single fossil genus *Archaeotinodes*. To date, 16 extinct species from the Baltic, Saxonian, and Rovno ambers have been described (Ulmer 1912; Mey 1988; Melnitsky 2009; Melnitsky & Ivanov 2010). Structures of the male genitalia in the genus *Archaeotinodes* show a wide diversity among the species placed in this genus. The data suggest that the genus *Archaeotinodes* includes phylogenetically unrelated species (Melnitsky 2009). The wing venation in the genus *Archaeotinodes* [relative lengths of the discoidal cell (DC) and the anal loop, as well as of the DC and median cell (MC) in the forewings, and also the number of forks in the hind wings], the structure of the hair warts, and the genital apparatus are significantly different from those in the recent representatives of Ecnomidae. This genus combines the typical features of Ecnomidae and Psychomyiidae. However, any taxonomic changes and analysis of the phylogenetic relationships would not be possible without thorough revision of this group of fossil caddisflies.

Material and methods

This study is based on an examination of selected specimens from the Baltic Amber collection (from the Kaliningrad region, Russia) deposited in the Borissiak Paleontological Institute of the Russian Academy of Sciences, Moscow (PIN RAS). The types are deposited in this collection. Three new species of the fossil genus *Archaeotinodes* were recognized and described below. We have used the conventional methods for studying the insects in ambers (Rasnitsyn & Quicke 2002). The remnants of cuticle permit the description of coloration in our material.