



<http://dx.doi.org/10.11646/zootaxa.3635.2.2>

<http://zoobank.org/urn:lsid:zoobank.org:pub:B74B0B78-911E-41FE-879F-7D41C8A77DBF>

Paleocene origin of the cockroach families Blaberidae and Corydiidae: Evidence from Amur River region of Russia

PETER VRŠANSKÝ^{1,2}, LUBOMÍR VIDLIČKA^{3,4}, PETER BARNA²,
EUGENIA BUGDAEVA⁵ & VALENTINA MARKEVICH⁵

¹Arthropoda Laboratory of the Paleontological Institute, Russian Academy of Sciences, Profsoyuznaya 123, 117868 Moscow, Russia

²Geological Institute, Slovak Academy of Sciences, Dúbravska cesta 9, P.O.BOX 106, 840 05 Bratislava, Slovakia.

E-mail: geolvrsa@savba.sk

³Institute of Zoology, Slovak Academy of Sciences, Dúbravska cesta 9, 845 06 Bratislava, Slovakia. E-mail: uzaevidl@savba.sk;

⁴Department of Biology, Faculty of Education, Comenius University, Moskovská 3, Bratislava, 813 34, Slovakia.

E-mail: vidlicka@fedu.uniba.sk

⁵Institute of Biology and Soil Science, Far East Branch, Prosp. 100-letiya 159, 690022 Vladivostok, Russia.

E-mail: bugdaeva@ibss.dvo.ru

Abstract

Morphna paleo sp. n., the earliest winged representative of any living cockroach genus and the earliest representative of the family Blaberidae, is described from the Danian Arkhara-Boguchan coal mine in the Amur River region (Russian Far East). The branched Sc and A suggest Ectobiidae (=Blattellidae) probably is not the ancestral family because Blaberidae were derived directly from the extinct family Mesoblattellidae. The associated Danian locality Belaya Gora yielded *Ergaula stonebut* sp. n., the earliest record of the family Corydiidae. Both species belong to genera codominant in the Messel locality, thus validating their dominance in early Cenozoic assemblages.

Key words: fossil insects, fossil cockroaches, Tertiary, Blaberidae, Corydiidae, *Morphna*, *Ergaula*

Introduction

The Paleocene epoch, with 177 known extinct insect species: 44 coleopterans, 28 dipterans, 28 hemipterans, 27 hymenopterans, 15 odonates, 10 orthopterans, 8 neuropterans, 6 trichopterans, 5 mecopterans, 2 dermapterans, and 1 lepidopteran (EDNA fossil insect database; <http://edna.palass-hosting.org>; active 2.5. 2012) is the least known Tertiary period in terms of insect diversity. No cockroaches, only two related termite species and a single mantodean *Arvernineura insignis* have been described from Menat (Piton 1940). In contrast, 6124 Eocene, 2663 Miocene and 2550 Oligocene species have been recorded. Pliocene and Pleistocene species are also numerous, but in EDNA underrepresented due to the presence of living species in these Epochs (EDNA catalogue only original designations of species).

Cockroaches originated in the Bashkirian Carboniferous, with the oldest record originating from the Quilianshan in China (Zhang *et al.* 2012, Guo *et al.* 2012). Typical Mesozoic families were derived from the Phylloblattidae near the P/T boundary and the stem of the living families (but also the stem for all mantodeans and termites) can be traced from the Mesozoic family Liberiblattinidae (Vršanský 2002, 2010, 2012). The earliest record of any living family is the ectobiid (blattellid) *Piniblattella vitimica* (Vishniakova, 1964) from the earliest Cretaceous (Vršanský 1997). Before this study, living cockroach genera, including highly advanced forms, were known starting from the early Eocene (Archibald & Mathewes 2000) and the modern fauna is considered to originate around the Paleocene-Eocene Thermal Maximum (PETM—Vršanský *et al.* 2011, 2012b). (The amber fossil *?Blattella lengleti*, is a nymph and may represent a separate genus.) The present study provides evidence for the occurrence of at least some extant genera before the Palaeocene side of the PETM, and in parallel provides earlier evidence for the two living families Corydiidae and Blaberidae.