



Article

urn:lsid:zoobank.org:pub:7733FF4B-D56F-47AB-B9D4-53C648EDF036

Graciliblatta bella gen. et sp. n.—a rare carnivorous cockroach (Insecta, Blattida, Raphidiomimidae) from the Middle Jurassic sediments of Daohugou in Inner Mongolia, China

JUN-HUI LIANG^{1,2}, WEI-LONG HUANG¹ & DONG REN^{2*}

¹ Tianjin Museum of Natural History, 206 Machang Road, Hexi District, Tianjin, 300074, P.R. China

² College of Life Science, Capital Normal University, 105 Xisanhuanbeilu, Haidian District, Beijing, 100037, P.R. China

*Corresponding author: E-mail: rendong@mail.cnu.edu.cn

Abstract

Graciliblatta bella Liang, Huang et Ren, **gen. et sp. n.** is described from the Middle Jurassic Jiulongshan Formation of Daohugou in Eastern Inner Mongolia, China. Vein Sc of the new taxon has up to eight distinct branches, a remarkable diagnostic feature that distinguishes it from the other five known genera of the Raphidiomimidae. The species was either extraordinary rare or lived remotely from the source area. It significantly expands the knowledge on diversity of carnivorous cockroaches - the least known cockroaches.

Key words: fossil cockroach, Blattida= Blattaria= Blattodea, Raphidiomimidae, new genus, new species, Daohugou, Middle Jurassic, Jiulongshan Formation

Introduction

Raphidiomimidae is a small family of extinct, Mesozoic carnivorous cockroaches. Until now, only five genera and seven species have been described: *Raphidiomima chimaera* Vishniakova, 1973, *R. cognata* Vishniakova, 1973, *Cameloblatta variegata* Vishniakova, 1973, *Liadoblattina blakei* Scudder, 1886, *Rhipidoblattina karatavica* Vishniakova, 1968, *R. maculata* Vishniakova, 1968 and *Fortiblatta cuspicolor* Liang, Vršanský et Ren, 2009 (Vishniakova, 1968, 1973; Vršanský *et al.*, 2002; Vršanský & Ansoerge, 2007; Vršanský, 1999, 2002, 2008a, d; Liang *et al.*, 2009).

The family probably originated during the Early Jurassic from the family Caloblattinidae, which originated during the Permian, and went extinct during the Early Cretaceous (Vršanský, 2002, 2008d, 2010). It was widely distributed in Eurasia during the entire Jurassic and was a special attempt of carnivory among cockroaches.

Raphidiomimidae is the dominant cockroach family in the Jiulongshan Formation in Daohugou during the Middle Jurassic (Blattulidae were subdominant) (Vršanský *et al.*, in preparation). The family had the following differentiating characters: prognathous head extending out of the pronotum, extensive divided eye at the base of the head, elongated forewing with narrow costal area, a diagonal kink in the anal field, cursorial foreleg, and somewhat internalized inner but also outer valvae.

The present specimen was collected from Jiulongshan Formation in Daohugou, Inner Mongolia in Northeast China. The Daohugou locality has yielded fossils such as insects, bivalves, plants, conchostracans, gastropods, proto-feathered dinosaurs and Eutherian mammals (Ji *et al.*, 2006). Collected insects are well-preserved, such as long-proboscid scorpionflies (Ren *et al.*, 2009), carnivorous cockroaches (Liang *et al.*, 2009), mimic lacewings (Wang *et al.*, 2010), and a diversity of plants. The dating of this deposit is Middle Jurassic (Ren *et al.*, 2002, 2009; Chen *et al.*, 2004; Wang, 2000; Gao & Ren, 2006; Liang *et al.*, 2009; Wang *et al.*, 2010), and the paleoenvironmental reconstruction of this area indicates it had mountain streams, lakes, and a humid and warm-temperate climate (Tan & Ren 2002; Ren *et al.*, 2002; Wang *et al.*, 2007a, b). It is notable that some cockroaches indicate dense vegetation, but some of the more common species indicate open environments (Vršanský *et al.*, 2009).