



# Article

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## *Arcofuzia cana* gen. et sp. n. (Insecta, Blattaria, Fuziidae) from the Middle Jurassic sediments of Inner Mongolia, China

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### Abstract

Fuziidae is an indigenous Chinese family known from the Middle Jurassic sediments. So far, only three genera have been described from Daohugou locality in Inner Mongolia, China. *Arcofuzia cana* gen. et sp. n., attributed to the family Fuziidae, is described herein from the Jiulongshan Formation, based on its autapomorphic large body size, distinct forceps-like grasping male cerci, distinct pattern of very wide forewing markings, thick Sc and rich forewing venation with many small but very distinct crossvein-like reticulations.

**Key words:** Fossil cockroach, new genus, new species, Daohugou, China

### Introduction

Cockroaches have existed since the Late Carboniferous (Brongniart 1885). Extinct cockroaches had many unique characters and forms suggesting interesting cockroach behaviors, for example, the jumping genus *Skok*, the earliest eusocial organism *Sociala*, light-mimicking luminescent cockroaches of the family Blaberidae, an earwig-like cockroach of the family Fuziidae (Vršanský 2007, 2010; Vršanský et al. 2009, 2012) and predatory Raphidiomimidae including nocturnal forms (Liang et al. 2012).

The cockroach superfamily Caloblattinoidea, which originated from Phyloblattidae in the early Triassic, was dominant in many formations from the Triassic to the Jurassic (Vršanský et al. 2002), and led from the ancestor toward modern cockroach taxa. Representatives of this superfamily are characterized by a forewing 15–30 mm long, thick intercalary veins, and typical dark marking pattern (Vršanský et al. 2000). Blattulidae, a family of cosmopolitan Mesozoic cockroaches, originated during the Triassic (Vršanský et al. 2002) and passed through the Late Jurassic–Early Cretaceous boundary.

Fuziidae, a family within Caloblattinoidea, was erected by Vršanský et al. (2009). This family is an indigenous Chinese taxon known from the Middle Jurassic sediments. Until now, only three genera have been described: *Fuzia* Vršanský, Liang & Ren, 2009, *Parvifuzia* Guo & Ren, 2011 and *Colorifuzia* Wei, Liang & Ren (Vršanský et al. 2009; Guo & Ren, 2011, Wei et al., in press). Two specimens collected from Jiulongshan Formation in Daohugou Village, Ningcheng County, Inner Mongolia, China are distinct from these genera based on their apomorphically distinct forceps-like grasping male cerci, pattern of wing markings, thick Sc and forewing venation with many small crossvein-like reticulations. We erect a new genus, *Arcofuzia* gen. n., attributed to the family Fuziidae, to accommodate these specimens.

Many well-preserved insects have been described from the Jiulongshan Formation, such as Neuroptera, Orthoptera, Mecoptera, Plecoptera, Hymenoptera, Hemiptera, carnivorous cockroaches, Diptera, Ephemeroptera, Grylloblattida, and pterosaur and dinosaur parasites of the order Nakridletia (Gu et al. 2012; Cui et al. 2010; Ren et al. 2009; Wang et al. 2010; Liu et al. 2008; Yao et al. 2007; Shih et al. 2011; Zhang et al. 2009; Liang et al. 2009; Huang et al. 2008; Vršanský et al. 2010). The age of the Jiulongshan Formation is still controversial, but it is generally accepted that the age of the Daohugou biota is Middle Jurassic (Bathonian—Callovian boundary) (Shen et al. 2003; Gao et al. 2006).