



A exceptionally-preserved new species of *Barchaboilus* (Orthoptera: Prophalangopsidae) from the Middle Jurassic of Daohugou, China

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Abstract

A new species of Prophalangopsidae, *Bacharboilus lii* **sp. nov.**, is described. It was collected from the Middle Jurassic Jiulongshan Formation of Daohugou Village, Ningcheng County, Chifeng City, Inner Mongolia, China. This exquisitely preserved specimen exhibits clear wing venation and head structures, especially the mouthpart morphology. The stout mandibles bear well defined molar dentes which indicate an herbivorous feeding habit.

Key words: *Bacharboilus*, new species, Jiulongshan Formation, mandibles

Introduction

A number of prophalangopsids collected from Chinese Middle Jurassic deposits have been described in recent years. (Hong 1982, 1983, 1984, 1986; Wang 1987; Lin & Huang 2006, Ren & Meng, 2006; Li *et al.* 2007; Fang *et al.* 2007, 2009; Lin *et al.* 2008; Gu *et al.* 2009, 2010). They are known based on forewing venation, but few with head morphology. Herein, we report a new species assigned to *Bacharboilus* Gorochov 1988, and provide more information on head characters of *Bacharboilus*.

The material was collected from the Daohugou Village, Jiulongshan Formation, Ningcheng County, Inner Mongolia, China. Here we consider the age of the Formation as the Middle Jurassic (Bathonian–Callovia boundary interval) (Ren *et al.* 1995; Ren *et al.* 2002; Ren *et al.* 2010; Cui *et al.* 2010).

Material and methods

The specimen CNU-ORT-NN2011001PC is housed in Sanya Palaeontological Museum. The specimen was examined with a Leica DFC 500 dissecting microscope. Line drawings and figs were prepared with CorelDraw 12 graphic software and Photoshop CS3. The photographs were taken by Leica DFC 500 dissecting microscope and Epson scanner Perfection 1650.

The wing venation nomenclature used in this paper is based on the interpretation of Béthoux & Nel (2001, 2002): Corresponding abbreviations are: ScP, posterior Subcosta; RA, anterior Radius; RP, posterior Radius; MA, anterior Media; MP, posterior Media; CuA, anterior Cubitus; CuP, posterior Cubitus; CuPa α , the anterior branch of first posterior Cubitus; CuPa β , the posterior branch of first posterior Cubitus; CuPb, the second posterior Cubitus. AA, anterior Analis; AA1, first anterior Analis. The term ‘handle’ describes a strong cross-vein appearing as a main vein.