



Reassessment of the Jurassic damsel-dragonfly genus *Karatawia* (Odonata: Campteropterygidae)

YONG-JUN LI^{1,2}, ANDRÉ NEL³, DONG REN^{1,4}, BING-LAN ZHANG² & HONG PANG^{2,4}

¹College of Life Science, Capital Normal University, 105 Xisanhuanbeilu, Haidian District, Beijing 100048, China

²State Key Laboratory of Biocontrol and Institute of Entomology, Sun Yat-Sen University, Guangzhou 510275, China

³CNRS UMR 7205, CP 50, Entomologie, Muséum National d'Histoire Naturelle, 45 rue Buffon, F-75005 Paris, France

⁴Corresponding author. E-mail: rendong@mail.cnu.edu.cn or Lsshspang@mail.sysu.edu.cn

Abstract

A new species *Karatawia sinica* Li, Nel et Ren, **sp. nov.** is described from the Middle Jurassic Jiulongshan Formation, and compared with the other species of this genus. As it is based on a new fossil with fore- and hindwings preserved, it confirms the attribution of *Karatawia sibirica* to this genus, of *Karatawia* to the Campteropterygidae, and the synonymy of the Karatawiidae with this family. Otherwise, the two other species *K. mongolica* and *K. shurabica*, which are based on more incomplete specimens, are more properly to be considered as Campteropterygidae incertae sedis.

Key words: Isophlebioidea, Mesozoic, **n. sp.**, Inner Mongolia, China

Introduction

Karatawia Martynov 1925 is the type genus of the family Karatawiidae Martynov 1925, junior synonym of the Campteropterygidae Handlirsch, 1920 (Nel *et al.* 1993). As such, it is one of the most important taxa of this family of damsel-dragonflies. Nevertheless, it is also one of the most poorly understood genera because the holotype of its type species, *K. turanica* Martynov 1925 is based on an isolated forewing. The three other species currently attributed to this genus are also based on fragmentary materials, so their attribution is debatable. A reassessment of this genus is a crucial part of the review of the Isophlebioidea that we have undertaken. The discovery of a new specimen, with fore- and hindwings in connection to the body allows us to solve the puzzle and compare the forewings and hindwings that have been attributed to the genus *Karatawia*.

Material and methods

The study is based on one specimen (NO. CNU-ODO-NN2011017) (Fig. 1) housed in the Key Laboratory of Insect Evolution & Environmental Changes, Capital Normal University, Beijing, China. The specimen was examined with a Leica MZ12.5 dissecting microscope and illustrated with the aid of a drawing tube attached to the microscope. Line drawings were made using Adobe Photoshop CS graphic software.

The wing venation nomenclature used in this paper follows Riek (1976) and Riek and Kukalova-Peck (1984), as amended by Nel *et al.* (1993) and Bechly (1996). We use the following standard abbreviations: AA anal anterior, AP anal posterior, Ax0 Ax1 Ax2 primary antenodal cross-veins, CuAa distal branch of cubitus anterior, CuAb proximal branch of cubitus anterior, IR1, IR2 intercalary radial veins, MAa distal branch of median anterior, MAb posterior branch of median anterior, MP median posterior, N nodus, 'O' oblique vein, Pt pterostigma, RA radius anterior and RP radius posterior; Su.C. subdiscoidal cell; D.C. discoidal cell.