Taxonomic notes on the *Protohermes changninganus* species group (Megaloptera: Corydalidae), with description of two new species

XINGYUE LIU1,3, FUMIO HAYASHI2 & DING YANG1

1Department of Entomology, China Agricultural University, Beijing 100193, China
2Department of Biology, Tokyo Metropolitan University, Minamiosawa 1–1, Hachioji, Tokyo 192–0397, Japan
3Corresponding author. E-mail: xingyue_liu@yahoo.com

Abstract

Species of the dobsonfly *Protohermes changninganus* group are revised. *Protohermes curvicornis* sp. nov. and *P. ohli* sp. nov. are herein described and placed in the *P. changninganus* group. *Protohermes tengchongensis* Yang & Yang is considered a junior subjective synonym of *P. subnubilus* Kimmins.

Key words: *Protohermes*, new species, China, India, Myanmar

Introduction

The dobsonfly genus *Protohermes* van der Weele, 1907 is the most diverse genus of Megaloptera with ca. 70 described species from eastern, southern, and southeastern Asia. The adults of *Protohermes* are characterized by the anterior branch of 2A partly fused with stem of 1A in the forewing and most species have yellow or white round markings on the forewings. Within *Protohermes*, there are 13 recognized species groups, *P. assamensis* group (Liu et al. 2007a), *P. changninganus* group (Liu & Yang 2005), *P. costalis* group (Liu et al. 2007b), *P. davidii* group (Liu et al. 2010), *P. dichrous* group (Liu et al. 2013a), *P. differentialis* group (Liu et al. 2006a), *P. fruhstorferi* group (Liu et al. 2007c), *P. guangxiensis* group (Liu et al. 2008a), *P. latus* group (Liu et al. 2013b), *P. parcus* group (Liu et al. 2009), *P. sabahensis* group (Liu et al. 2008b), *P. xingshanensis* group (Yang & Liu 2010), and *P. xanthodes* group (Liu et al. 2006b). These species groups include most of the described species in the genus. The *P. changninganus* group was the first group proposed by Liu & Yang (2005) based primarily on the synapomorphy of the long band-like dorsal lobe and short ventral lobe of the male ectoproct. Originally, the *P. changninganus* group included *P. albipennis* (Walker, 1853), *P. changninganus* Yang & Yang, 1988, *P. decemmaculatus* (Walker, 1860), *P. subnubilus* Kimmins, 1948, *P. tengchongensis* Yang & Yang, 1988, and *P. xingshanensis* Liu & Yang, 2005 (Liu & Yang 2005). Subsequently, by the examination of a large number of *Protohermes* specimens, including the type of *P. albipennis*, based on genitalic features, *P. albipennis* and *P. xingshanensis* should be excluded from the *P. changninganus* group (Yang & Liu 2010). Herein, we revise the *P. changninganus* group describing two new species, *P. curvicornis* sp. nov. and *P. ohli* sp. nov. Other new data on the taxonomy and distribution of the *P. changninganus* group are also included with a revised key to the species.

Material and methods

The specimens examined are deposited in the following museums and collections.

<table>
<thead>
<tr>
<th>Code</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAUC</td>
<td>Entomological Museum, China Agricultural University, Beijing, China.</td>
</tr>
<tr>
<td>BMNH</td>
<td>Natural History Museum, London, U.K.</td>
</tr>
<tr>
<td>CNC</td>
<td>Canadian National Collection of Insects, Arachnids and Nematodes, Ottawa, Canada.</td>
</tr>
</tbody>
</table>