



Zootaxa 3996 (1): 001–253
www.mapress.com/zootaxa/

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Monograph

ISSN 1175-5326 (print edition)

ZOOTAXA

ISSN 1175-5334 (online edition)

<http://dx.doi.org/10.11646/zootaxa.3996.1.1>

<http://zoobank.org/urn:lsid:zoobank.org:pub:57172E6C-447D-40A1-A665-E27D69411CAB>

ZOOTAXA

3996

Dryinidae of the Eastern Palaearctic region (Hymenoptera: Chrysidoidea)

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Magnolia Press
Auckland, New Zealand

Accepted by A. Lelej: 8 May 2015; published: 6 Aug. 2015

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Dryinidae of the Eastern Palaearctic region (Hymenoptera: Chrysidoidea)

(*Zootaxa* 3996)

253 pp.; 30 cm.

6 Aug. 2015

ISBN 978-1-77557-759-1 (paperback)

ISBN 978-1-77557-760-7 (Online edition)

FIRST PUBLISHED IN 2015 BY

Magnolia Press

P.O. Box 41-383

Auckland 1346

New Zealand

e-mail: zootaxa@mapress.com

<http://www.mapress.com/zootaxa/>

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ISSN 1175-5326 (Print edition)

ISSN 1175-5334 (Online edition)

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Abstract

An updated revision of Eastern Palaearctic Dryinidae is presented. Six subfamilies, 17 genera and 160 species are treated. Descriptions, geographic distribution, known hosts, natural enemies and type material of each species are presented, together with illustrations of the main morphological characters and keys to the subfamilies, genera and species. Complete lists of references concerning the Eastern Palaearctic Dryinidae and their hosts are given. The lectotype is designated for *Anteon flaviscapus* Jansson, 1950. A new combination is proposed for *Mirodryinus olmii* (Móczár, 1983), **comb. nov.** (from *Radiimancus* Móczár). The following new records are reported: *Aphelopus prolatus* Mita & Olmi, 2014 and *Gonatopus formicicolus* Richards, 1939 from Sweden; *Aphelopus querceus* Olmi, 1984, *Aphelopus serratus* Richards, 1939 and *Anteon reticulatum* Kieffer, 1905 from Bulgaria; *Gonatopus nigricans* (R. Perkins, 1905) from Solomon Islands; *Haplogonatopus oratorius* (Westwood, 1833) from Germany and Sweden.

Key words: taxonomy, revision, Eastern Palaearctic region, descriptions, hosts, distribution, type material, keys

Introduction

Dryinidae (Hymenoptera: Chrysidoidea), which have fifteen subfamilies, fifty genera and 1827 species in the world, are parasitoids of Hemiptera Auchenorrhyncha (Guglielmino & Olmi 1997, 2006, 2007; Guglielmino *et al.* 2013; Olmi *et al.* 2014; Olmi & Virla 2014). They play important roles in the natural control of these insect pests, and have potential significance as biological control agents (Olmi 1994, 1999a, 1999b, 2000a).

In the Palaearctic region nine subfamilies, 24 genera and 257 species of Dryinidae are recognized.

The species of Dryinidae present in the Eastern Palaearctic zoogeographical region were studied in the first half of 1900 by a few researchers. The first dryinid species described in the Eastern Palaearctic region was *Gonatopus fulgori* Nakagawa, 1906 (now junior synonym of *Gonatopus nigricans* (R. Perkins, 1905)), described from Japan. However, the Kieffer's world monograph of Dryinidae (Kieffer 1914b), considered the most important contribution of that age to the knowledge of Dryinidae, but ignoring Nakagawa's paper, does not list any Eastern Palaearctic species. After Kieffer, studies on Dryinidae did not reach substantial progresses mainly because of the confusion existing in the systematics. The previous attempt of Kieffer to give order to the family did not obtain any results, mainly because the descriptions and keys to species in Kieffer's monograph are almost completely unreliable.

Before the second world war, the Eastern Palaearctic country where studies on Dryinidae were developed was Japan, mainly for trying to solve many problems connected with leaf- and planthoppers pests of rice. The main papers are those of Esaki & Hashimoto (1930, 1931, 1932, 1933, 1935, 1936, 1939), Esaki & Mochizuki (1940), Esaki & Sameshima (1939, 1940), Mochizuki (1943), Uchida (1927), and Uye (1934).

The first important attempt to create a workable systematics of Dryinidae was that of Richards (1939, 1953) mainly related to the British species.

After Kieffer, Olmi was the first researcher (and still unique) trying to give order to the dryinid taxonomy on a world basis. His world monograph (Olmi 1984) included all species known at that age in a system of subfamilies and genera that also today represents the base of all studies on Dryinidae. In Olmi's world monograph sixty species, belonging to six subfamilies and fourteen genera, were recognized in the Eastern Palaearctic region. After 1984, Olmi continued to study Dryinidae by publishing a lot of papers, many of which concerning the Eastern Palaearctic fauna (Olmi 1986, 1987a, 1991, 1992d, 1993d, 1995e, 1995f, 1998e, 1998f, 2000b, 2003, 2004, 2005b, 2009, 2010; Olmi & Bechly 2001; Olmi *et al.* 2010; Ponomarenko & Olmi 2006a, 2006b).

Apart from Russia, China is the largest country of the Eastern Palaearctic region. However, in the previous Olmi's papers, sixty eight species were listed from China. The biggest effort to better the knowledge of Chinese dryinids was that of Prof. Junhua He and his graduate students, represented mainly by Prof. Zaifu Xu. They collected a lot and published a long series of papers regarding provinces of both Oriental and Eastern Palaearctic