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Revision of the Megaloptera (Insecta: Neuropterida) of Madagascar

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Abstract

The Megaloptera fauna of Madagascar comprise two endemic genera: *Haplosialis* Navás, 1927 (Sialidae) and *Madachauliodes* Paulian, 1951 (Corydalidae: Chauliodinae). Here the two genera are revised, with detailed descriptions and illustrations. A new species, *Madachauliodes bicuspidatus* Liu, Price & Hayashi, **sp. nov.**, is described. Furthermore the phylogeny and biogeography of the Madagascan fauna is discussed.

Key words: Chauliodinae, Sialidae, taxonomy, Madagascar

Introduction

Madagascar, the fourth-largest island in the world, is located in the Indian Ocean several hundred kilometers off Africa's southeastern coast and is home to a remarkable variety of plant and animal species (Goodman & Benstead 2005). The prehistoric breakup of the supercontinent Gondwana separated the Madagascar-Antarctica-India landmass from the Africa-South America landmass between 165–135 Ma, with Madagascar later splitting from India approximately 88 Ma (Karanth 2006; Yoder & Nowak 2006), allowing plants and animals on the island to evolve in relative isolation (Vences *et al.* 2009). Consequently, Madagascar is a biodiversity hotspot with a high level of endemism (Goodman & Benstead 2005). The holometabolous insect order Megaloptera occurs mainly in subtropical or warm temperate regions. Most species are narrowly geographically distributed and rarely encountered. Approximately 380 extant species are currently recognized within 34 genera (Yang & Liu 2010; Oswald 2012).

The Megaloptera fauna of Madagascar comprise two endemic genera: *Haplosialis* Navás, 1927 (Sialidae) and *Madachauliodes* Paulian, 1951 (Corydalidae: Chauliodinae) with each genus containing two species. The taxonomy of Madagascan Megaloptera is poorly studied. To date published studies on *Haplosialis* have not included sufficiently detailed descriptions and illustration of the species (Navás 1927, 1936; Paulian 1951). The studies on *Madachauliodes* are more detailed, including descriptions and phylogenetic analysis (Paulian 1951; Penny 1999; Liu *et al.* 2012). However, description and illustrations of the male and female genitalia, which have significant characters for taxonomic and phylogenetic studies, need further improvement.

While examining specimens from Madagascar, an undescribed species of *Madachauliodes* was recognized. In this paper, we revise the Megaloptera from Madagascar, describing all three species of *Madachauliodes* and one species of *Haplosialis*. The phylogenetic status and biogeography of these two genera are also discussed.

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