



# Article

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## Redescription of *Zinagon chilensis* (Silvestri, 1903) from Chile, with a species list of Iulomorphidae from the Southern Hemisphere (Diplopoda: Spirostreptida: Epinannolenidea)

ZOLTÁN KORSÓS<sup>1,2</sup> & HELEN J. READ<sup>3</sup>

<sup>1</sup>Department of Zoology, Hungarian Natural History Museum, Baross u. 13, H-1088 Budapest, Hungary. E-mail: korsos@nhmus.hu

<sup>2</sup>Present address: Tropical Biosphere Research Center, University of the Ryukyus, 1 Senbaru, Nishihara, Okinawa 903-0213, Japan

<sup>3</sup>2 Egypt Wood Cottages, Egypt Lane, Farnham Common, Bucks, SL2 3LE, United Kingdom

### Abstract

The epinannolenidean diplopod species *Zinagon chilensis* (Silvestri, 1903) is redescribed based on recently collected material from Chile, as well as on the re-examination of type specimens of both *Iulomorpha chilensis* Silvestri, 1903, and *Zinagon osorno* Chamberlin, 1957. The latter is here designated a junior subjective synonym. A list of the species of the family Iulomorphidae is provided, including 15 genera occurring in the Southern Hemisphere, i.e. South America, South Africa, Australia, and New Zealand.

**Key words:** millipedes, Cambaloidea, new synonymy, South America

### Introduction

The millipede fauna of Chile is still largely unexplored. Gervais (1847) first described five species, Attems (1899, 1903) added 14 more, then Silvestri (1905) enumerated 32 diplopod species, 16 of them having been described by himself in 1903 (2 of Attems' species have since been synonymized). Brölemann (1916) and Attems (1931, 1940) described a few more species (1 and 3 respectively), then Chamberlin (1957) made the next, largest contribution (based on collections by the “Lund University Chile Expedition”, and by the “California Academy of Sciences Expedition”) with 23 new species, thus bringing the known millipede fauna of Chile at that time to 56 species. Shear (1988) added three species of Chordeumatida making the total to 59. Most of the described species have never been recollected, and although type material is probably available in the original depositories (Museo Civico di Storia Naturale “Giacomo Doria”, Genova, Italy; Naturhistorisches Museum, Wien, Austria, and Department of Entomology, California Academy of Sciences, San Francisco, USA), there are no recent studies dealing with these, or with the Chilean millipede fauna in general.

The spirostreptidan family Iulomorphidae, although clearly confined to the Southern Hemisphere, has a somewhat uncertain content in terms of millipede genera. There have always been difficulties (Hoffman 1980) in separating the two related families (Iulomorphidae and Cambalidae) in the group “Cambaloidea” which is no longer considered to exist as a monophyletic entity (Jeekel 1985, 2004, Korsós & Johns 2009). In the classification presently accepted (Shelley 2003) they even belong in different suborders under Spirostreptida (Epinannolenidea and Cambalidea, respectively), but until a detailed morphological and molecular analysis is carried out using samples from a wide geographical range, a consensus is unlikely to be reached.

In the present paper, based on examination of types and freshly collected material, we provide a redescription for the single known “cambaloid” species from Chile, *Iulomorpha chilensis* Silvestri, 1903. Its placement into the monotypic South American genus *Zinagon* Chamberlin, 1957 by Jeekel (2004) is confirmed, and at the same time the new junior synonymy of *Z. osorno* Chamberlin, 1957 with *Z. chilensis* (Silvestri, 1903) is established.

Then we list all the Southern Hemisphere species of Iulomorphidae, supporting the opinion that these 14 genera (Mauriès 1987, Korsós & Johns 2009) together with *Zinagon* and occurring in Australia, New Zealand, South Africa, and South America are best placed in this family.