

# Species of Heterolepismatinae (Zygentoma: Lepismatidae) Found on some Remote Eastern Australian Islands

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**ABSTRACT.** Lepismatid silverfish found on Norfolk Island, Lord Howe Island, Balls Pyramid and the Herald Cays are examined. Despite their isolated locations and small land area, these islands each support one or two species of the genus *Heterolepisma* Escherich. A phylogenetic analysis based on 23 morphological characters conducted using 14 adequately described Heterolepismatinae revealed deep rooted phylogenetic divergences and a new genus *Maritisma* is erected for *M. coralinium* sp. nov.; *Heterolepisma dispar* Uchida from Japan is transferred to the new genus. *Heterolepisma howense* Womersley is redescribed from the type material and additional specimens from Lord Howe Island; it is also the only species of *Heterolepisma* so far found on Norfolk Island. *Heterolepisma milledgei* sp. nov. is described from both Lord Howe Island (including Blackburn Island in its lagoon) and Balls Pyramid. *Heterolepisma pyramidum* sp. nov. is described from Balls Pyramid. *Maritisma coralinium* gen. nov., sp. nov. and *H. heraldense* sp. nov. are described from the Herald Cays; both are considered as endangered by rising sea level however *H. heraldense* sp. nov. may be conspecific with the inadequately described *H. rouxi* Silvestri from New Caledonia. Limited molecular data (COI and 28S) were obtained for two of the Lord Howe Island/Balls Pyramid species.

## Introduction

Silverfish are primitively wingless and generally found in drier or subterranean habitat, and so would seem to be unlikely seafarers but their occurrence on numerous isolated islands suggests otherwise. Silverfish have been collected on many Atlantic islands such as the Canary Islands (e.g., Mendes *et al.*, 1993, Molero-Baltanás *et al.*, 2014), throughout the Caribbean island chain (e.g., Wygodzinsky, 1972, Espinasa *et al.*, 2011), on islands of the Indian Ocean e.g., the Seychelles (Carpenter, 1916) and throughout the Pacific including Hawaii (e.g., Zimmerman, 1948) and Japan (e.g., Uchida, 1944). Silverfish of the genus *Heterolepisma* Escherich, 1905, in particular, seem to be particularly widely distributed on islands throughout the Pacific with *H. annectens* described from the Juan Fernandez Islands (Silvestri, 1924), *H. howense* from

Lord Howe Island (Womersley, 1942), *H. insulare* from the Galapagos (Banks, 1901), *H. japonicum* from Ishigaki Island in the Okinawa group (Uchida, 1968), *H. mumfordi* from the Marquesas (Silvestri, 1935), *H. rouxi* from New Caledonia (Silvestri, 1915), *H. tonga* from Tonga (Mendes, 2012) and *H. zelandicum* from New Zealand (Tillyard, 1924). This paper describes a surprisingly rich and diverse fauna from several islands, all several hundred kilometres off the east coast of Australia (Fig. 1). These include Lord Howe Island (600 km from the Australian mainland, 14.5 km<sup>2</sup> land area), Norfolk Island (land area 35 km<sup>2</sup>, 1400 km from the Australian mainland and 900 km from Lord Howe Island), Balls Pyramid, a volcanic stack (land area ca 0.3 km<sup>2</sup>) rising 562 m above the ocean some 20 km to the south of Lord Howe Island and the Herald Cays, two low-lying coral atolls (combined land area 0.34 km<sup>2</sup>, some 300 km east of Cairns and 1,700 km northwest of New Caledonia).

**Keywords:** Thysanura; taxonomy; zoogeography; new genus; new species; DNA barcodes; 28S rDNA; threatened species

**Taxonomic registration:** (LSID publication) <http://zoobank.org/CB380F40-F8D8-471B-86B5-E567C8B8EEC9>

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