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On some silverfish taxa from the Cape York region of northern Australia (Zygentoma: Lepismatidae: Ctenolepismatinae)

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Abstract. Silverfish (Zygentoma) are an ancient, but poorly studied group of primitively wingless insects. Species definition based on morphology alone is complicated by variations arising from the continuous moulting, even after reaching sexual maturity. In recent studies the use of molecular data has supported the identification of consistent morphological character traits, however only a small fraction of the species have been investigated. Eight species of the large silverfish genus *Acrotelsella*, collected by the first author from the Cape York Peninsula of northeastern Australia, are described and named as new species. Molecular data (COI and 28S) are presented that reinforces previous suggestions that the genus will eventually need to be split into two.

Introduction

Silverfish belong to an ancient group of primitively wingless insects believed to have emerged in the Devonian period, some 400 MY ago (Grimaldi & Engel, 2005; Misoff *et al*., 2014). Five families are currently recognised, three of which are considered to be ancient relics and which have not yet been collected in Australia. Each of the two larger, widespread families (Lepismatidae and Nicoletiidae) contain about 320 described species worldwide, of which about 80 are Australian endemic species. Smith (2017) reviewed the Australian fauna, summarising the known distribution and biology of these two families, noting the importance of integrating molecular and morphological studies. In general the order has been poorly sampled and many species remain undescribed within Australian museum collections. Unfortunately, material stored in 80% ethanol becomes unsuitable for the extraction of good quality DNA within 1–2 years. In recent years the authors have collected fresh material of Lepismatidae from many locations in the eastern half of Australia, sequenced DNA and integrated the results with morphological studies to progressively describe and define the fauna e.g. Smith *et al*. (2021). Here we extend the work of Smith & Mitchell (2022) on the largely Australian silverfish genus *Acrotelsella* Silvestri, 1935, concentrating on material collected on the Cape York Peninsula. This is a vast region of savannah woodland and tropical forests in the far north of Queensland with a tropical monsoonal climate of high rainfall in the summer months (November to April) and very little rainfall in the southern winter.

Keywords: Zygentoma, Silverfish, Thysanura, taxonomy, new species, barcode, *Acrotelsella*
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