

## A review of the genus *Tycherobius* (Acari: Camerobiidae), with descriptions of four new species from Australia

QING-HAI FAN<sup>1</sup> & DAVID E. WALTER<sup>2</sup>

*1* Key Lab of Biopesticide and Chemical Biology, Ministry of Education; College of Plant Protection, Fujian Agricultural and Forestry University, Fuzhou 350002, China; Current address: Landcare Research, Private Bag 92 170, Auckland, New Zealand; e-mail: fanqh@acarology.org

*2* Department of Biological Sciences, University of Alberta, Edmonton, Alberta, T6G 2E9 Canada; e-mail: dew@ualberta.ca

### Table of contents

Abstract .....	2
Introduction .....	2
Materials and methods .....	2
Genus <i>Tycherobius</i> Bolland .....	3
Key to species of <i>Tycherobius</i> (adults) .....	3
<i>Tycherobius superbus</i> (Canestrini) .....	5
<i>Tycherobius virginiensis</i> (McGregor) .....	5
<i>Tycherobius lombardini</i> (Summers & Schlinger) .....	8
<i>Tycherobius rhytis</i> (Chaudhri, Akbar & Rasool).....	8
<i>Tycherobius polonicus</i> Bolland .....	9
<i>Tycherobius stramenticola</i> Bolland .....	9
<i>Tycherobius hawaiiensis</i> Bolland & Swift .....	9
<i>Tycherobius edaphon</i> Flechtmann .....	10
<i>Tycherobius quercus</i> Bolland & Koç .....	10
<i>Tycherobius bollandi</i> Ayyıldız & Doğan .....	11
<i>Tycherobius turcicus</i> Ayyıldız & Doğan .....	11
<i>Tycherobius aotearoa</i> Fan & Zhang .....	11
<i>Tycherobius stipula</i> <b>sp. n.</b> .....	14
<i>Tycherobius australis</i> <b>sp. n.</b> .....	23
<i>Tycherobius acicula</i> <b>sp. n.</b> .....	40
<i>Tycherobius elongata</i> <b>sp. n.</b> .....	45
Acknowledgment .....	51
References .....	51

## Abstract

This is the first review on the genus *Tycherobius* Bolland since its establishment in 1986. We studied characters of the genus, provide distribution and habitat information, and described four new species from Australia: *Tycherobius stipula* **sp. n.**, from grasstree litter in Brisbane and wet-sandy heath litter in Cooloola, *T. australis* **sp. n.**, from forest litter in Brisbane, wet-sandy heath litter in Cooloola, *T. acicula* **sp. n.**, from litter in African Mahogany plantation in Far North Queensland and *T. elongata* **sp. n.**, from forest litter in Brisbane. We also give a key to adults of the genus.

**Key words:** Camerobiidae, *Tycherobius*, review, new species, Australia

## Introduction

*Tycherobius* Bolland belongs to the family Camerobiidae that is known as stilt-legged mites. Members of the genus are found living in duff, litter, soil, tree-hole, in moss and on plants, and are found in the Palaearctic, Nearctic, Neotropical and Australian regions. There has been no study on the biology or ecology of any species of the genus. Presumably, they are predators as those of the genus *Neophyllobius* Berlese (Bolland 1983, 1986). Species of *Tycherobius* have a larval and protonymphal stage, and presumably a deutonymph, but this has not been described.

The genus was established by Bolland (1986) while reviewing the family Camerobiidae. He described two species and moved four from *Neophyllobius* Berlese to *Tycherobius*. During the subsequent nineteen years, six more species, one from Hawaii (Bolland & Swift 2000), one from Brazil (Flechtmann 2001), three from Turkey (Bolland & Koç 2001; Ayyıldız & Doğan 2003), one from New Zealand (Fan & Zhang 2005) were added to the genus. Thus the total number of species become twelve. Additionally, Flechtmann (2001) and Ayyıldız & Doğan (2003) each provided a key to species based on the key of Bolland (1986). In this paper we review the genus, describe four new species from Australia and provide a key to adults of all described species.

## Materials and methods

Line drawings were made in pencil using a camera lucida attachment on a microscope and inked with Rotring Rapidograph Pens. Measurements were made using stage-calibrated ocular micrometers (Fan *et al.*, 2003). The terminology of idiosomal chaetotaxy follows Kethley (1990). All measurements are given in micrometers ( $\mu\text{m}$ ).

## Abbreviations

QM: Queensland Museum, South Brisbane, Qld, 4101, Australia.