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## Three new species of the genus *Austrophthiracarus* from New Zealand (Acari: Oribatida: Phthiracaridae)

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### Abstract

Three new species of *Austrophthiracarus* (Oribatida: Phthiracaridae) from New Zealand are described: *Austrophthiracarus matuku* **sp. nov.** from the Bethells Matuku Reserve, Auckland, *Austrophthiracarus notoporosus* **sp. nov.** from the Tutoke Bench, Fiordland and *Austrophthiracarus karioi* **sp. nov.** from the Mt. Karioi, Waikato. Holotype specimens are deposited in the New Zealand Arthropod Collection, Landcare Research and paratypes are deposited in the Northeast Institute of Geography and Agroecology, Chinese Academy of Sciences.

**Key words:** Soil mites, Oribatida, Phthiracaridae, *Austrophthiracarus*, new species, New Zealand

### Introduction

The family Phthiracaridae (Oribatida) consists of nearly 800 described species in 10 genera and is the largest family of ptyctimous mites (Niedbala 1994, Subias 2013). This paper is one of a series of recent efforts to increase our understanding of the phthiracarid fauna in New Zealand. Liu & Zhang (2013a) added a new species of *Atropacarus* (*Atropacarus*), Liu & Zhang (2013b) added two new species of *Notophthiracarus*, Liu & Zhang (2013c & d) added three new species of *Austrophthiracarus*, and Liu & Zhang (2013e) added two new species of *Phrathicarus*. This paper describes three more new species of *Austrophthiracarus* from New Zealand.

Balogh and Mahunka (1978) proposed *Austrophthiracarus* with *A. radiatus* as type species. The members of this genus are mainly distinguished by median and lateral fields of prodorsum not fused; rostral setae inserted at distance from the end of rostrum; notogaster with 15 pairs of setae but often neotrichous; genital setae arranged in two rows, setae  $g_6$  close to or even above  $g_4$ , at least setae  $g_6$  and  $g_7$  far away from paraxial region; adanal setae far away from paraxial margin, two setae ( $an_1$  and  $an_2$ ) near the paraxial margin of ano-adanal plate; setae  $d$  on tibiae IV short, coupled with solenidions (Niedbala 1994). Prior to this study, 42 species of *Austrophthiracarus* were known in the Australian Region, of which only seven species have been found in New Zealand (Niedbala 2012, Liu & Zhang 2013c, d). The purpose of this paper is to provide detailed descriptions and illustrations of three new species of this genus from New Zealand. This brings the total number of New Zealand species of the genus *Austrophthiracarus* to 10.

### Material and methods

Measurements and descriptions are based on specimens mounted in temporary cavity slides that were studied using a light microscope equipped with a drawing attachment.

*ro>le*; (5b) 17 pairs of notogastral setae present; (6b) two pairs of lyrifissures *ia* and *im* present; (7b) setae *h* of subcapitulum much longer than distance between them; (8b) ten genital setae present with formula (5+5): 0; (9b) setae *v'* on femora I absent.

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## References

- Balogh, J. & Mahunka, S. (1978) Data to the oribatid fauna of Australia (Acari). I. *Opuscula Zoologica*, 15 (1–2), 31–49.
- Balogh, P. (1984) Oribatid mites from Colombia (Acari). *Acta Zoologica Hungarica*, 30 (1–2), 29–51.
- Liu, D. & Zhang, Z.-Q. (2013a) *Atropacarus* (*Atropacarus*) *niedbalai* sp. nov., an extreme case of neutrichy in oribatid mites (Acari: Oribatida: Phthiracaridae). *International Journal of Acarology*, 39 (6), 507–512.  
<http://dx.doi.org/10.1080/01647954.2013.837960>
- Liu, D. & Zhang, Z.-Q. (2013b) The genus *Notophthiracarus* of New Zealand (Acari: Oribatida: Phthiracaridae): three new species and a key to 24 described species. *Zootaxa*, 3682 (2), 392–400.  
<http://dx.doi.org/10.11646/zootaxa.3682.2.11>
- Liu, D. & Zhang, Z.-Q. (2013c) Two new peculiar ptyctimous mites (Acari: Oribatida: Phthiracaridae) from the Australian region, with a key to 54 described species of *Notophthiracarus* Ramsay in Australia. *Austral Entomology*, 1–8.  
<http://dx.doi.org/10.1111/aen.12066>
- Liu, D. & Zhang, Z.-Q. (2013d) Two new species of *Austrophthiracarus* (Acari: Oribatida: Phthiracaridae) from New Zealand. *Zootaxa*, 3682 (2), 385–391.  
<http://dx.doi.org/10.11646/zootaxa.3682.2.10>
- Liu, D. & Zhang, Z.-Q. (2013e) Two new species of the genus *Phrathicarus* from New Zealand (Acari: Oribatida: Phthiracaridae). *Systematic and Applied Acarology*, 18 (3), 233–238.  
<http://dx.doi.org/10.11158/saa.18.3.5>
- Niedbala, W. (1987) Phthiracaroida (Acari, Oribatida) nouveaux d'Australie. *Redia*, 70, 301–375.
- Niedbala, W. (1992) *Phthiracaroida* (Acari, Oribatida). *Systematic Studies*. PWN-Polish Scientific Publishers, Warszawa, 612 pp.
- Niedbala, W. (1994) Supplement to the classification of Phthiracaroida, with redescriptions and descriptions of some species (Acari, Oribatida, Euptyctima). *Genus*, 5 (1–2), 1–152.
- Niedbala, W. (2000) The ptyctimous mites fauna of the Oriental and Australian Regions and their centres of origin (Acari: Oribatida). *Genus*, supplement, 1–493.
- Niedbala, W. (2012) An updated study of ptyctimous mite fauna (Acari: Oribatida) of the Australasian Region with a description of thirteen new species. *Acarologia*, 52 (2), 183–228.  
<http://dx.doi.org/10.1051/acarologia/20122049>
- Niedbala, W. & Penttinen, R. (2007) New species of ptyctimous mites (Acari: Oribatida: Oribotritiidae, Steganacaridae) with some new records from Australasian Region. *Annales Zoologici*, 57 (3), 517–532.
- Subías, L.S. (2013) Listado sistemático, sinonímico y biogeográfico de los ácaros oribátidos (Acariformes: Oribatida) del mundo (Excepto fósiles). *Graellsia*. 60 (número extraordinario), 3–305 (2004) (Actualizado en junio de 2006, en abril de 2007, en mayo de 2008, en abril de 2009, en julio de 2010, en febrero de 2011, en abril de 2012 y en mayo de 2013). [Internet]. Available from: <http://www.ucm.es/info/zoo/Artropodos/Catalogo.pdf> (accessed 19 Feb. 2014)