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Novonothrus lucasi spec. nov. , a new moss mite from Australia (Acari: Oribatida: Nothridae)

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Abstract. A new oribatid mite, *Novonothrus lucasi* n. sp. is described on the basis of specimens c in Australia, Victoria. The mite is distinguished from all known congeneric species by heteromorphic notogastral setae.

Key words: acarology, taxonomy, morphology, new species, *Novonothrus*, Australian region

INTRODUCTION

Family Nothridae Berlese, 1896, includes 85 nominal species (Subías 2004, updated 2010) divided into three genera: cosmopolitan *Nothrus* (80 species) and monotypic South Aftrican *Trichonothrus* and *Novonothrus*. The latter genus contains 4 species known so far: *N. flagellatus* Hammer, 1966, from New Zealand, and described by Casanueva & Norton (1997, 1998) from southern Chile: *N. covarrubiasi*, *N. puyehue* and *N. kethleyi*. The taxonomical status of *Novonothrus papuensis* Hammer, 1966, and the reasons for its transfer to the genus *Nothrus* were discussed by Mahunka (1978) and Casanueva & Norton (1997). In the latter paper, the authors recognized two additional previously undescribed species from southern Australia (one from Victoria, the other from Tasmania). As noted by Palmer & Norton (1991), *Trichonothrus* and *Novonothrus*, restricted to southern continents, are bisexual (opposite to thelytokous) and world-wide (except Antarctic) nothrid mites.

Our purpose is to describe and illustrate new Australian (Victoria) species of *Novonothrus*. Terminology is mostly that developed by Grandjean, see Travé & Vachon (1975) for references.

METHODS

Samples were cleared in lactic acid and stored in ethanol, dehydrated and examined with a scanning electron microscope in the Electron and Confocal Microscope Laboratory, at A. Mickiewicz University, Poznań, Poland).

Novonothrus lucasi spec. nov.

Description

Adult

Body length: ♀ 960-1100; ♂ 875-890 µm (holotype, female: 1100 µm), maximum body width: ♀ 510-585; ♂ 470-585 µm (holotype, female: 585 µm). Colour: light brown to brown. Body oval in shape without remains of tritonimphal exuviae, smooth; lateral margins slightly wavy, body surface porose with cavities on dorsal region.

Prodorsum (figs. 1, 3-5, 19, 21 23, 25). Surface strongly foveolate; rostrum slightly incised medially. All prodorsal setae setiform and smooth: *ro* shorter than *le*, *in* slightly shorter than *ro*, setae *ex* shorter than *in*, inserted below to bothridium. Bothridium well developed with very long, flagelliform and curved distally sensillus (figs. 1, 5, 19).

Notogaster (figs. 1, 2, 6-11, 24, 26, 29). Oval in shape, lateral margins rounded, without posterior lobes. Surface integument distinct, foveolate. With complement of 16 pairs of notogastral setae, different in shape: setiform and smooth in rows *c*, *d, e* and *f*; broad and distally rounded in rows *h* and *p* (only seta p_3 setiform, fig. 29). Length of setae of *c* row almost half shorter than those of *d* row. Opisthosomal gland (*gla*) posterior to seta f_2. Lyrifissures *ia*, *im*, *ih*, *ip* present.

Ventral region (figs. 2, 20, 28-30). Epimera finely punctate. Epimeral setal formula: (6-5)-(5-6)-6-5. Genital plates with 9 pairs of smooth setae; aggenital setae absent; 2 and 3 pairs of anal and adanal setae, respectively; aggenital and adanal plates fused and narrow. *Gnathosoma* (figs. 12-14, 27). Subcapitulum, chelicerae and palps normal for genus. Adoral setae heteromorphic (fig. 14): or_1 bifurcated, or_2 distinctly shorter than or_3. Cheliceral setae slightly barbed, seta ch_b slightly shorter than ch_a. Palp setation: 0-1-1-3-9(1).

Legs (figs. 15-18, 22). Tarsi monodactylous. Setation (famulus included) and solenidial formulae: I: 1-8-4-6-32 [1-2-3]; II: 1-7-5-5-25 [1-1-1]; III: 2-5-5-5-23 [1-1-0]; IV: 2-6-5-5-23 [1-1-0].

Material examined

The holotype and 8 paratypes were collected in: Australia, Victoria: Warburton, 30.IV.1978, *Nothofagus* litter, S. Peck [78-110] (6 specimens); Mnt. Buffalo, 23.IV.1978, u. bark log, S.&J. Peck [78-203] (2 specimens); Bulga Natl. Pk., 17.V.1978, gill fungi on logs & stump, S.&J. Peck [78-209] (1 specimen). The holotype and 4 paratypes are deposited in the Field Museum of Natural History, Chicago, Illinois, USA, one paratype in the collection of Z. Olszanowski, Department of Animal Taxonomy and Ecology, A. Mickiewicz University, Poznań, Poland, two specimens were used for SEM.

Etymology

Named in honour of Dr. Łukasz Kaczmarek, a prominent Polish tardigradologist.

Remarks

Novonothrus lucasi spec. nov. is similar to *N. flagellatus* Hammer, 1966 from New Zealand, in the shape of long, flagellate and curved sensilli, the shape of notogaster without posterior lobes and monodactylous tarsal claws. It can be easily distinguished from all other known representatives of the genus by heteromorphic notogastral setae: setiform and smooth in rows *c*, *d, e* and *f*; broad and distally rounded in rows *h* and *p* (excluding seta p_3 that is setiform).

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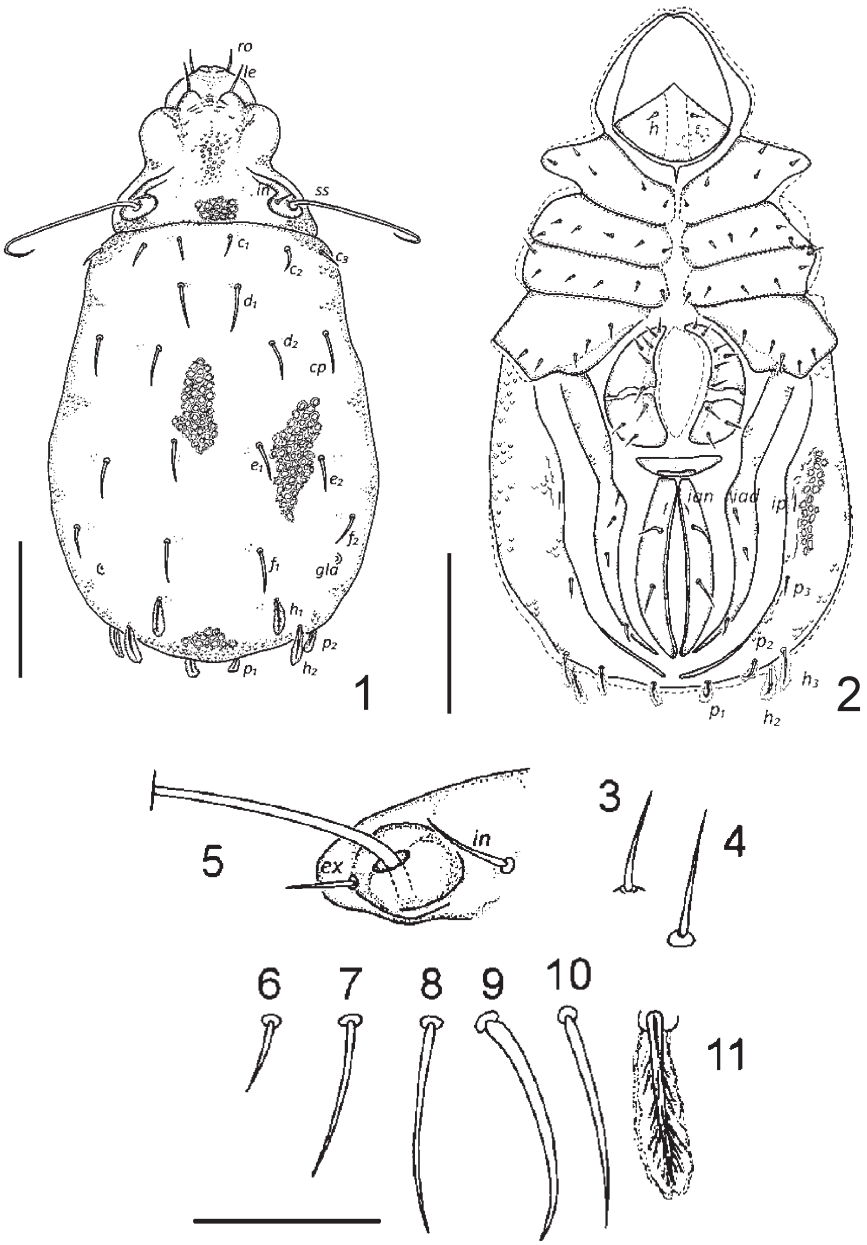
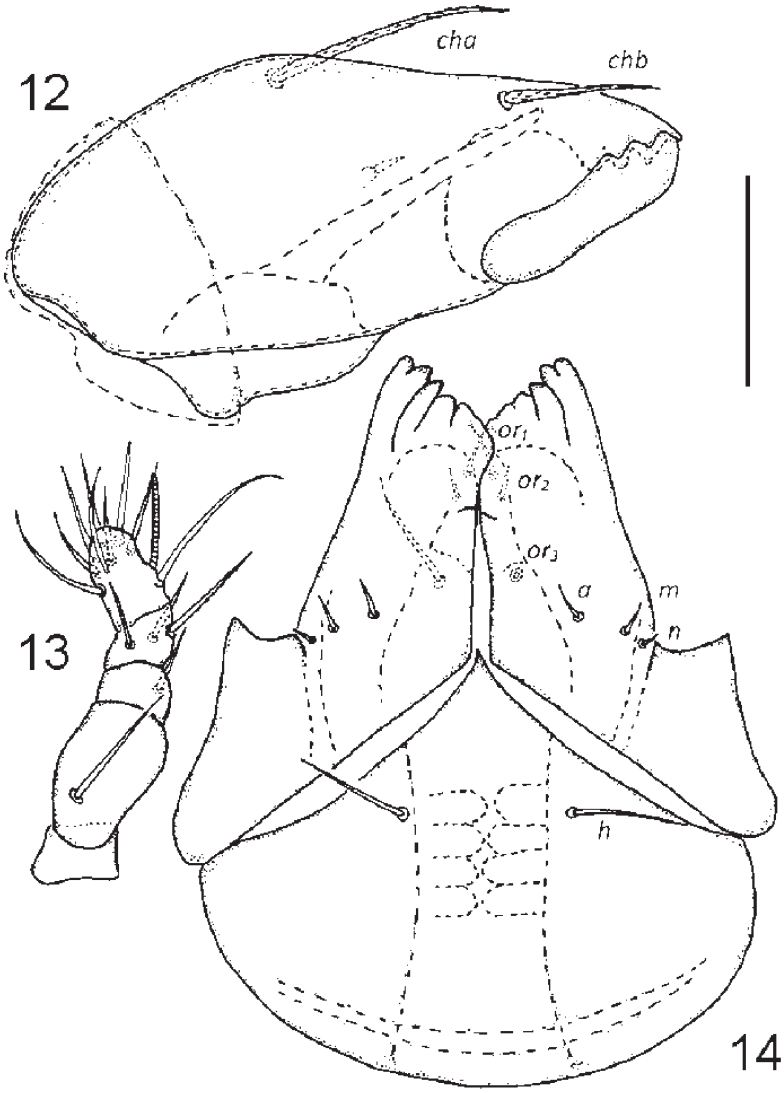
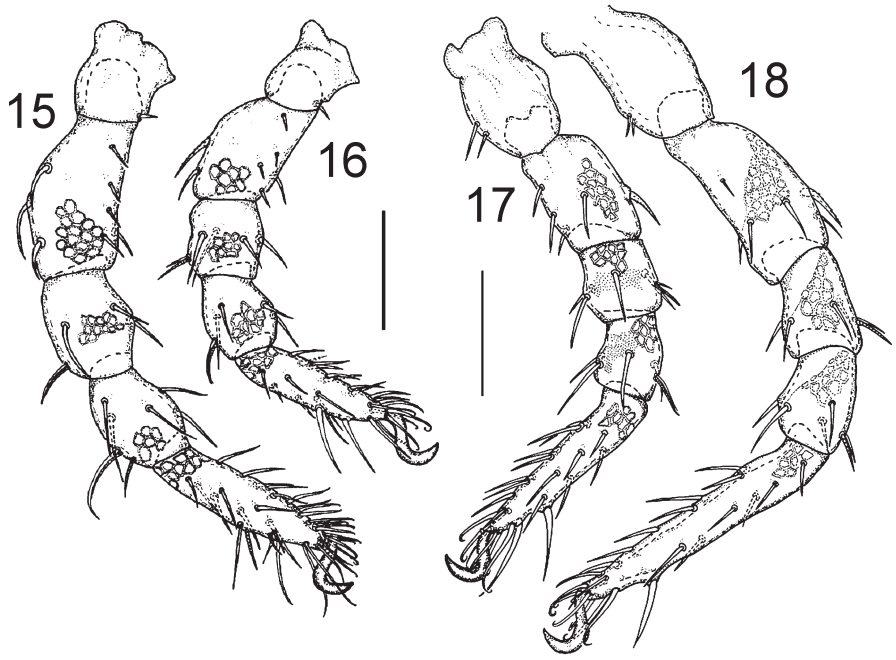


1-11. *Novonothrus lucasi* spec. nov., holotype: 1 – dorsal view, 2 – ventral view. Scale bar = 400 μm; 3 – seta ro, 4 – seta *le*, 5 – trichobothrium, 6 – seta c_1; 7 – seta d_1; 8 – seta d_2, 9 – seta e_1, 10 – seta f_1; 11 – seta h_1. Scale bar = 100 μm

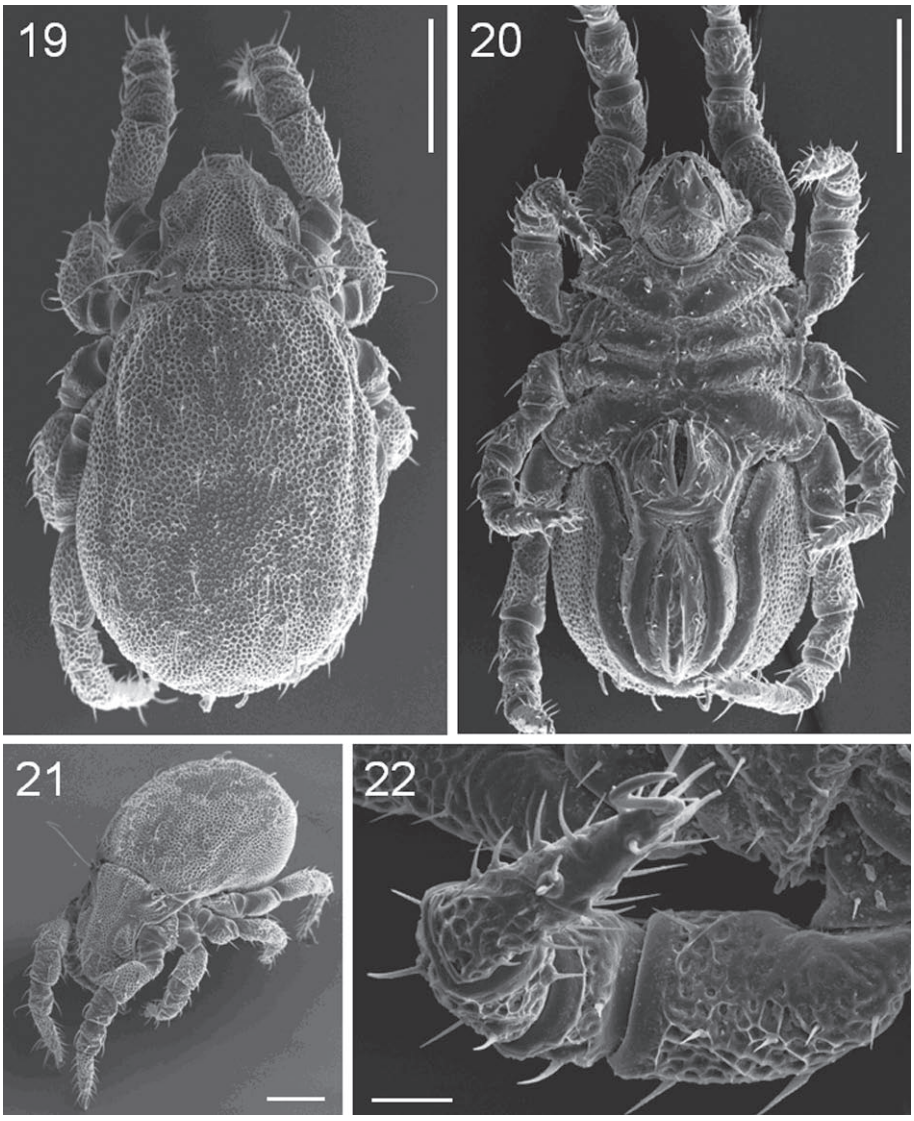
Figure captions



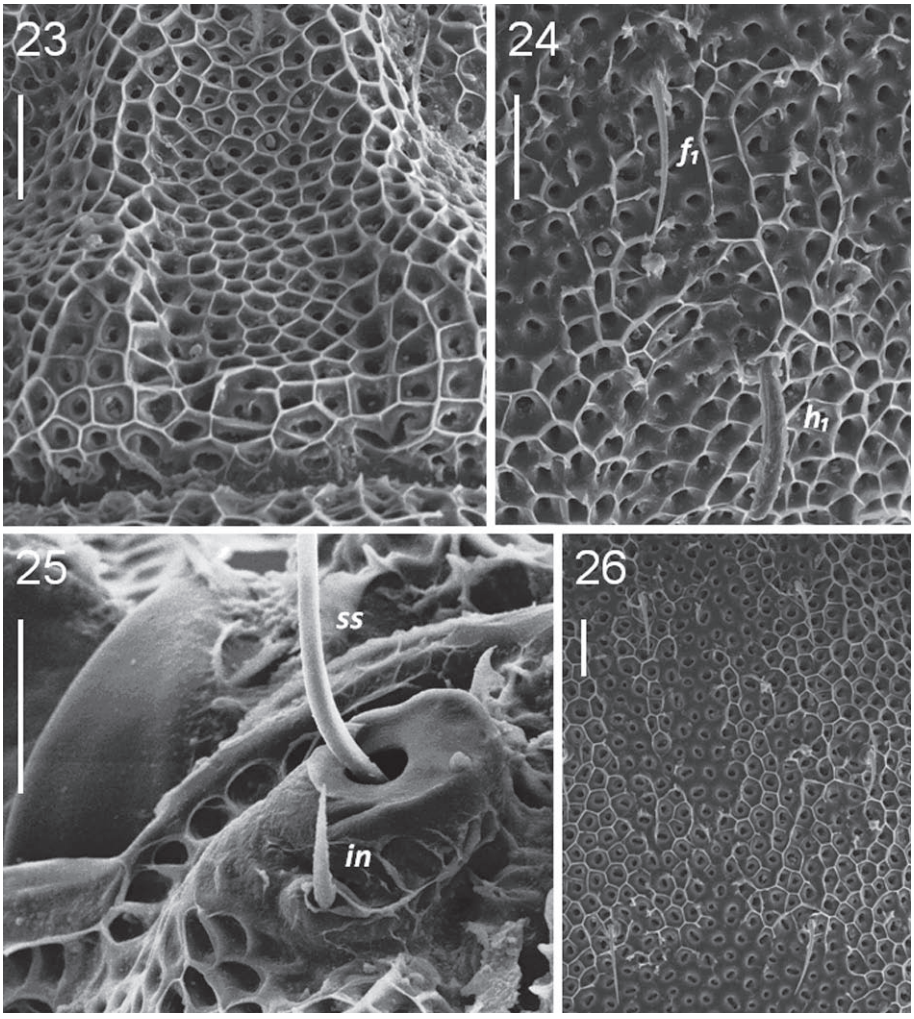
12–14. *Novonothrus lucasi* spec. nov., paratype: 12 – chelicera, antiaxial view, 13 – palp, antiaxial view. Scale bar = 100 μm



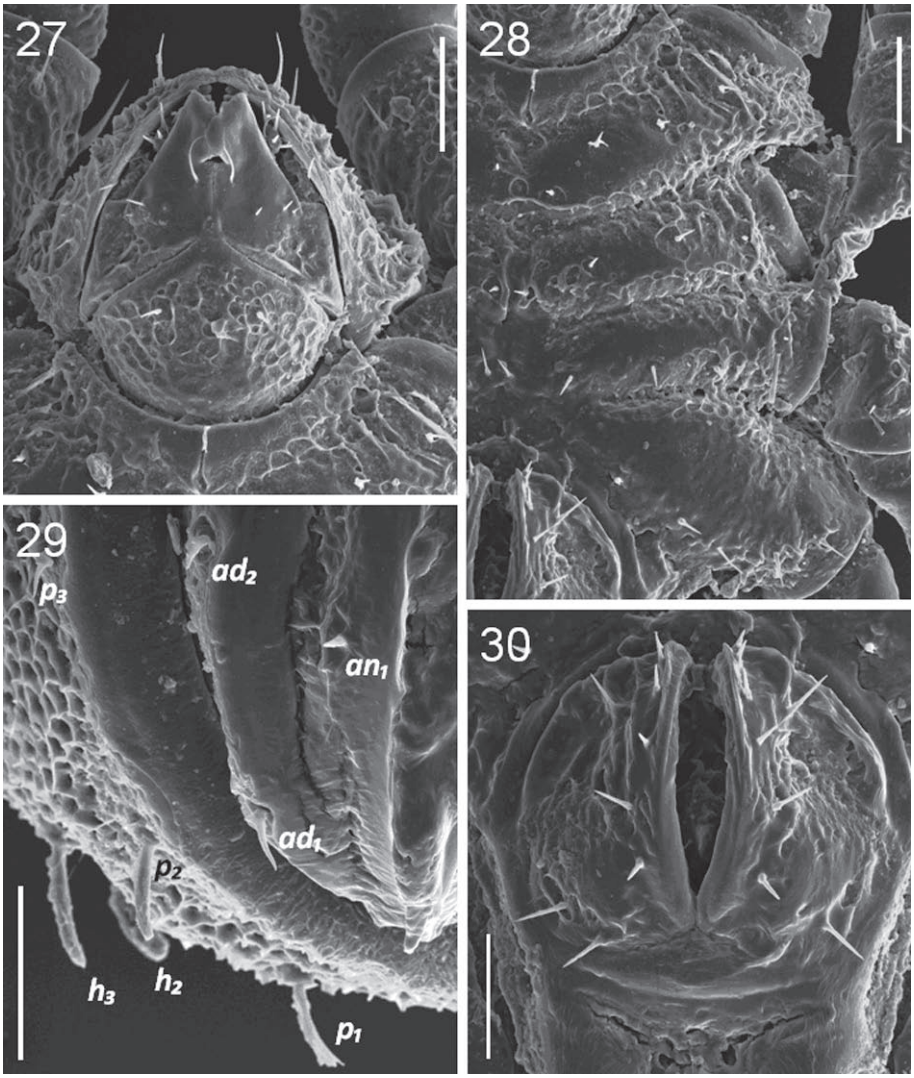
15-18. *Novonothrus lucasi* spec. nov., paratype: 15 – leg I, antiaxial view, 16 – leg II, antiaxial view; 17 – leg III, antiaxial view, 18 – leg IV, antiaxial view. Scale bar = 200 μm



19–22. *Novonothrus lucasi* spec. nov., paratype: 19 – dorsal view, 20 – ventral view, 21 – anterodorsal view, 22 – leg II, ventral view. Scale bar = 200 μm (figs. 19-22), 30 μm (fig. 22)



23–26. *Novonothrus lucasi* spec. nov., paratype: 23 – central part of prodorsum, dorsal view, 24 – right posterior part of notogaster, dorsal view, 25 – trichobothrium, antiaxial view, 26 – central part of notogaster, dorsal view. Scale bar = 30 μm



27–30. *Novonothrus lucasi* spec. nov., paratype, ventral view: 27 – subcapitulum, 28 – coxisternal region, 29 – posterior ventral plates (anal, adanal and ventral part of notogaster), 30 – genital opening. Scale bar = 50 μm