Memoirs of the Museum of Victoria 50(2): 341–346 (1990)
https://doi.org/10.24199/j.mmv.1990.50.08

31 March 1990
ISSN 0814-1827

TWO NEW WATER MITE GENERA FROM SOUTH-WESTERN AUSTRALIA (ACARINA: ATURIDAE, MIDEOPSIDAE)

By Mark S. Harvey

Department of Invertebrate Survey, Museum of Victoria,
71 Victoria Crescent, Abbotsford, Victoria 3067, Australia
Present address: Western Australian Museum, Francis Street, Perth, WA 6000, Australia

Abstract

Harvey, M.S., 1990. Two new water mite genera from south-western Australia (Acarina: Aturidae, Mideopsidae). *Memoirs of the Museum of Victoria* 50(2): 341–346.

Wheenyoides cooki (Aturidae) and *Tillia davisae* (Mideopsidae) are described from south-western Australia.

Introduction

Although the water mite fauna of eastern Australia is fairly well known at the generic level (Cook, 1986), the faunas of northern and western Australia are less well known. It is not particularly surprising, therefore, that two new genera have been recently collected in south-western Australia. These taxa are described here.

Methods follow Harvey (1987), and the abbreviations for the glandularia follow Harvey (in press). Specimens are lodged in the Western Australian Museum, Perth (WAM).

Aturidae

Frontipodopsinae

Remarks. As conceived by Cook (1974, 1986), the Frontipodopsinae contains four genera, *Frontipodopsis* Walter, *Karlvietsia* K.O. Viets, *Wheenyella* Cook and *Tasmanaxona* Cook. It is poorly characterised, but is presently defined by the laterally compressed body and the lack of genital flaps. Its position within the Aturidae was questioned by Cook (1974) and I believe there is sufficient evidence to warrant the removal of the subfamily, along with certain other pioniform genera (notably *Wettina* Piersig), from the Aturidae to a separate family. The necessary revisionary work has not yet been completed to confirm both the character states that would rigorously define this family, or verify its constituents, and these four genera are for the present retained in the Frontipodopsinae.

Wheenyoides gen. nov.

Type species: Wheenyoides cooki sp. nov.

Diagnosis. Claws and claw insertion area of tarsus I greatly enlarged; body laterally compressed; glandularia of dorsum without enlarged platelets; coxae of female not fused at mid-line; ventral shield extending only to posterior margin of genital field in female.

Description. Body laterally compressed. Dorsum with 2 pairs of dorsalia (1 bearing the postocularia) and 8 pairs of glandularia lying free in the integument; glandularia of dorsum without enlarged platelets. Ventral shield of male extending to posterior margin of body; that of female extending to posterior margin of genital field. Coxae of male fused at mid-line; those of female not fused. Pedipalpal tibia with 2 large, ventral setae. Tarsus I with greatly enlarged claws and claw insertion area.

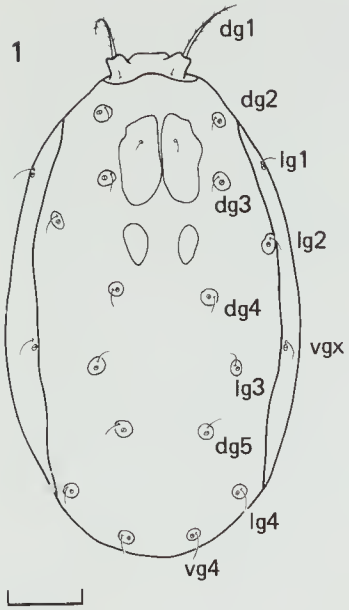
Etymology. The generic epithet is derived from *Wheenyella*, and is masculine.

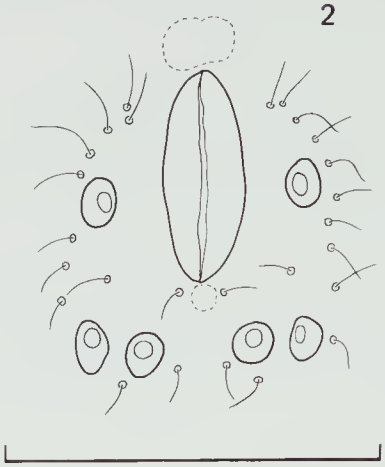
Remarks. The combination of enlarged tarsal claws of leg I and a laterally compressed body distinguishes *Wheenyoides* from all other frontipodopsines except *Wheenyella* Cook. *Wheenyoides* differs from *Wheenyella* as follows: glandularia of dorsum without enlarged platelets (with enlarged platelets in *Wheenyella*); coxae of female not fused at mid-line (fused in *Wheenyella*); ventral shield extending only to posterior margin of genital field in female (extending to posterior margin of body in *Wheenyella*).

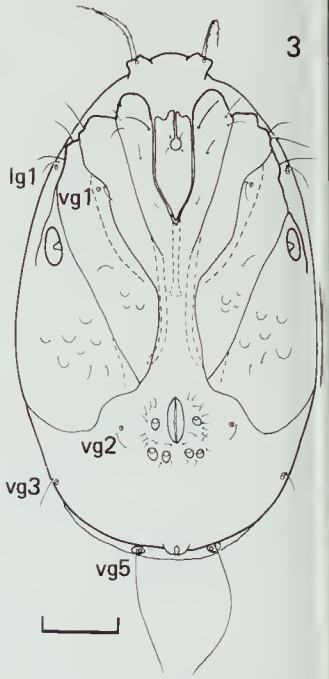
Wheenyoides cooki sp. nov.

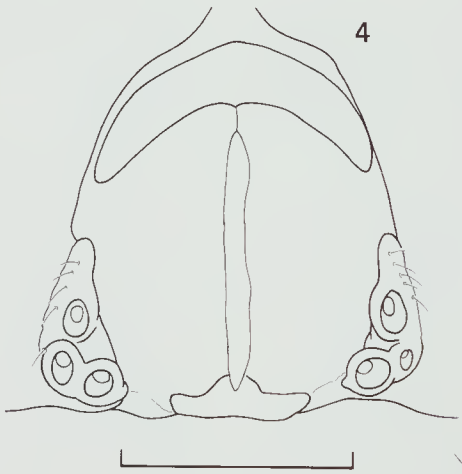
Figures 1–9

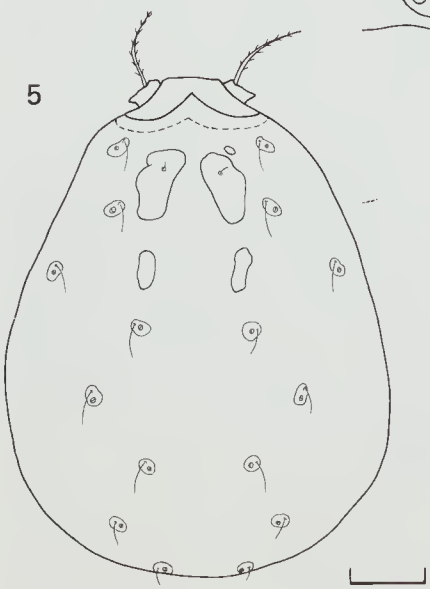
Types. Holotype male, Serpentine River below falls, Ser-

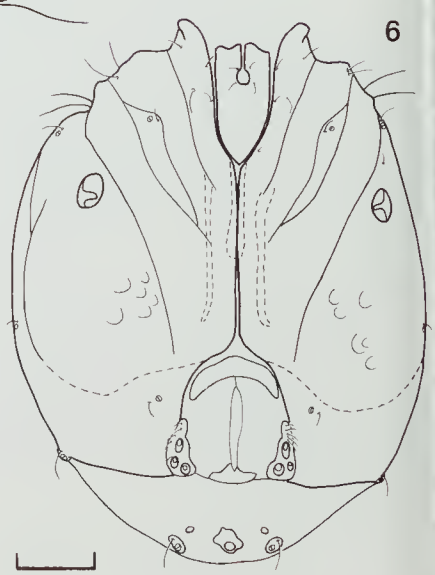

1
dg1
dg2
lg1
dg3
lg2
dg4
vgx
lg3
dg5
lg4
vg4

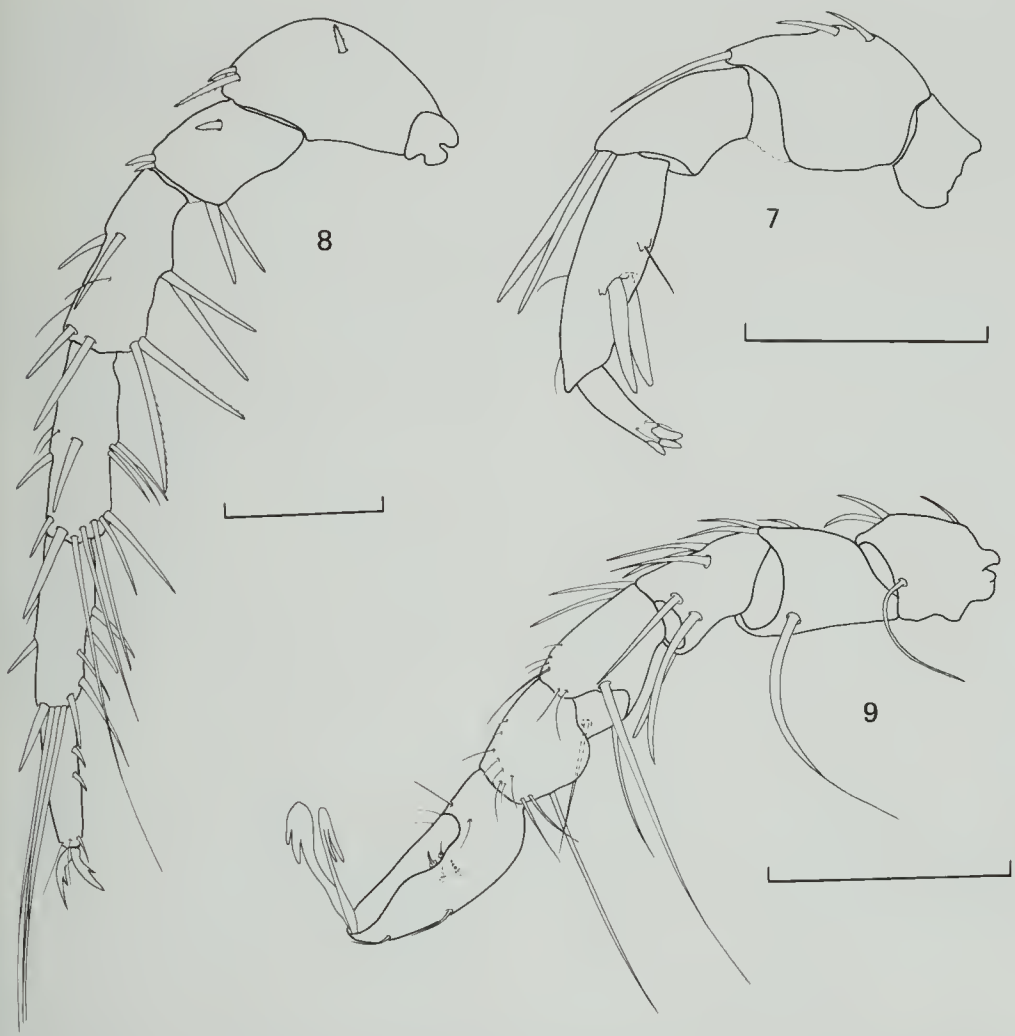

2


3
lg1
vg1
vg2
vg3
vg5


4


5


6



Figures 7–9. *Wheenyoides cooki* sp. nov. Fig. 7, paratype female. Figs 8, 9, holotype male. Fig. 7, right pedipalp; fig. 8, left leg IV; fig. 9, right leg I. Scale lines, 100 μm.

pentine Falls National Park, 32°23′S, 116°04′E, Western Australia, 24 Aug 1987, M.S. Harvey, J.D. Blyth and L.A. Barmuta, WAM 88/2926.

Paratype: 1 female, Lake Yeagarup, 18 km SW of Pemberton, 34°33′S, 115°43′E, Western Australia, 29 Aug 1987, M.S. Harvey and J.D. Blyth, WAM 88/2927.

Diagnosis. As for genus.

Description. Adults: 5 pairs of dorsoglandularia, 4 pairs of lateroglandularia and 5 pairs of ventroglandularia; seta of dg1 large, pinnate, and situated on large protuberances set in ventral shield; dg2, dg3, dg4, dg5, lg2, lg3, lg4 and vg4 in dorsum; lg1, vgx and vg3 on lateral margin of ventral shield. Dorsum (Figs 1, 5): with 2 pairs of dorsalia, the anterior pair completely surrounding the postocularia. Venter (Figs 3, 6): capitulum not fused to coxae; coxae of male fused at mid-line, of female not fused at mid-line; apodemes of coxa I nearly extending to posterior edge of coxal group; suture lines between coxae I and II and coxae II and III not reaching mid-line; suture lines between coxae III and IV extending postero-medially such that coxa IV is triangular; ventral shield extending to level of posterior edge of genital field in female, and to posterior edge of body in male; excretory

←

Figures 1–6. *Wheenyoides cooki* sp. nov. Figs 1–3, holotype male. Figs 4–6, paratype female. Figs 1, 5, dorsal aspect; figs 2, 4, genital field; figs. 3, 6, ventral aspect. Scale lines, 100 μm.

pore borne on small sclerite in female, incorporated into ventral shield in male. Genital region (Figs 2, 4): 3 pairs of small ovoid to circular acetabula borne on small acetabular plates in female, incorporated into ventral shield in male. Chelicera not examined. Pedipalp (Fig. 7): tibia with 2 very large ventral setae, and 1 thin ventral seta. Legs (Figs 8, 9): tarsus I with greatly enlarged claw insertion area, 0.68 (male), 0.72 (female) times as long as tarsus; claws of leg I enlarged, distally lobate; claws of other legs not particularly modified; legs II, III and IV with swimming setae arranged as follows: leg II: tibia 7; leg III: tibia 10; leg IV: tibia 3; legs with many long, often thick, setae.

Dimensions (μm), male (female): Body 653/397 (729/547). Capitulum length 134 (153). Genital field 83/70 (70/122). Pedipalp: trochanter 24 (32), femur 67 (87), genu 56 (72), tibia 77 (103), tarsus 40 (50). Leg I: trochanter 62 (83), basifemur 53 (78), telofemur 54 (70), genu 59 (70), tibia 49 (58), tarsus 94 (111), length of claw insertion area 64 (80). Leg IV: trochanter 153 (182), basifemur 64 (83), telofemur 120 (154), genu 126 (154), tibia 120 (146), tarsus 92 (115).

Etymology. This species is named for David Cook who first recorded frontipodopsines from Australia.

Remarks. Wheenyoides cooki has only been collected from two localities in south-western Australia, where it has been taken from a slow flowing area of the Serpentine River, and Lake Yeagarup, a moderately large dune lake.

Mideopsidae

Mideopsellinae

Remarks. The Mideopsidae are currently divided into five subfamilies, Mideopsinae, Mideopsellinae, Plaumanniinae, Gretacarinae and Guineaxonopsinae (Cook, 1974, 1986). The Mideopsellinae and Plaumanniinae differ from the remaining groups by the presence of an uncate pedipalp (Cook, 1974, 1988). The development of an uncate pedipalp appears to have occurred several times within the Arrenuroidea, and is of dubious value in delimiting higher taxa. The Mideopsellinae currently includes four genera: *Mideopsella* Lundblad, *Mideopsellides* K.O. Viets, *Tiramideopsis* Cook and *Phreatomideopsis* Schwoerbel, and possess acetabula in a single row (in the plaumanniines, the acetabula are in several rows). Although the new genus described below differs radically from the remaining genera of the subfamily in the position of the acetabula, I have little option but to assign it to the Mideopsellinae as presently defined.

Tillia gen. nov.

Type species. Tillia davisae sp. nov.

Diagnosis. Acetabula of female in a single row incorporated into ventral shield.

Description. Female: Dorsal and ventral shields present. Genital field with 7–8 pairs of minute acetabula, in a single row incorporated into ventral shield. Pedipalp uncate; tibia not rotated. Legs not modified, swimming setae absent.

Etymology. The generic epithet is an arbitrary combination of letters, and is feminine in gender.

Remarks. The form of the female genital field readily delimits this genus from other mideopsids. Unfortunately, only a single female of *Tillia* is known, and until males are examined its affinities are difficult to determine.

Tillia davisae sp. nov.

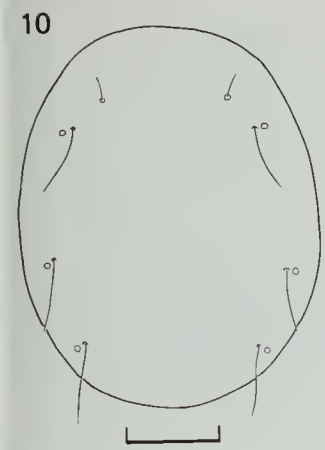
Figures 10–16

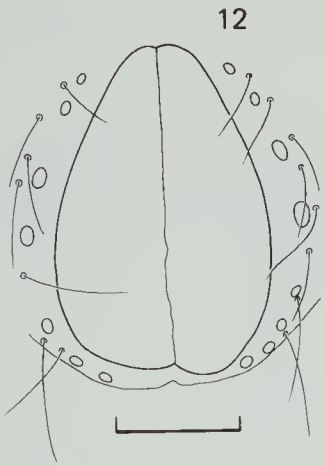
Type. Holotype female, Dirk Brook, Western Australia, 18 Sep 1986, J. Davis, L. Barmuta, WAM 88/2928.

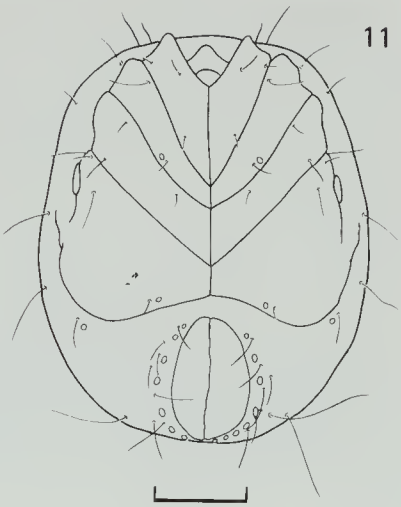
Diagnosis. As for genus.

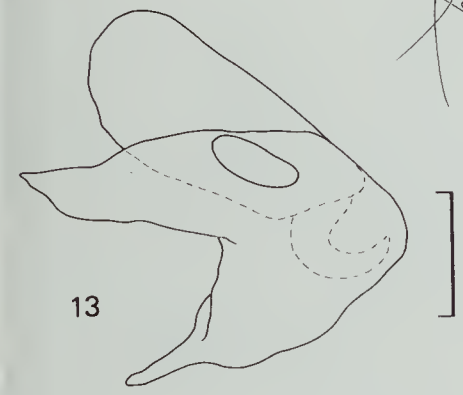
Description. Female: Dorsal and ventral shields present. Dorsal shield (Fig. 10) entire, bearing 3 pairs of dorsoglandularia; postocularia slightly anterior to the anterior-most glandularia of the dorsal shield. Ventral shield (Fig. 11) entire; vgl situated near posterior margin of coxa II; all coxal suture lines visible, those between I and II, II and III, and III and IV posteriorly directed, thus forming acute angles with the mid-line; medial margin of coxa IV narrow; posterior margin of coxa IV slightly rounded; foramina of leg IV without ventral lobes; capitular bay somewhat triangular; excretory pore incorporated into ventral shield. Genital field (Fig. 12) with 7–8 pairs of minute acetabula incorporated into ventral shield. Capitulum and chelicera as in Fig. 13. Pedipalp (Fig. 14) uncate; tibia not rotated; all setae acuminate. Legs (Figs 15, 16) not modified and without swimming setae; very few setae serrate.

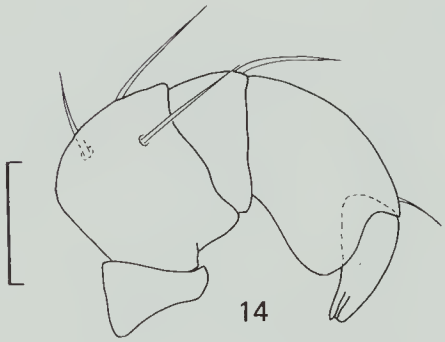
Figures 10–16. *Tillia davisae* sp. nov., holotype female. Fig. 10, dorsal aspect; fig. 11, ventral aspect; fig. 12, genital field; fig. 13, capitulum; fig. 14, right pedipalp; fig. 15, left leg IV; fig. 16, left leg I. Scale lines, 50 μm (Figs 12–14), 100 μm (Figs 10, 11, 15, 16).


10

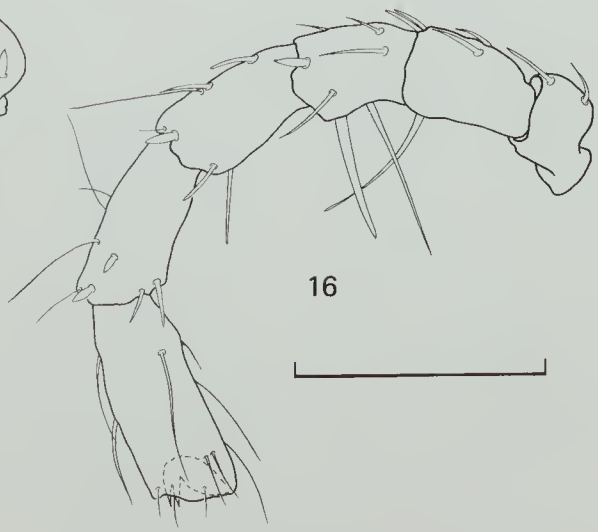

12


11


13


14


15


16

Dimensions (μm) female: Dorsal shield 410/324, ventral shield 449/345. Pedipalp: trochanter 17, femur 41, genu 22, tibia 46, tarsus 27. Leg I: trochanter 52, basifemur 77, telofemur 52, genu 68, tibia 83, tarsus 102. Leg IV: trochanter 68, basifemur 67, telofemur 65, genu 102, tibia 117, tarsus 116.

Etymology. This species is named for Jenny Davis, one of the collectors of the holotype.

Acknowledgments

This work was funded by the Australian Biological Resources Study. The Western Australian Department of Conservation and Land Management provided valuable logistic support, as well as permission to collect in areas under their control.

References

Cook, D.R., 1974. Water mite genera and subgenera. *Memoirs of the American Entomological Institute* 21: 1–860.

Cook, D.R., 1986. Water mites from Australia. *Memoirs of the American Entomological Institute* 40: 1–568.

Cook, D.R., 1988. Water mites from Chile. *Memoirs of the American Entomological Institute* 42: 1–356.

Harvey, M.S., 1987. New and little-known species of the water mite genera *Tartarothyas*, *Pseudohydryphantes* and *Cyclohydryphantes* from Australia (Chelicerata: Actinedida: Hydryphantidae). *Memoirs of the Museum of Victoria* 48: 107–122.

Harvey, M.S., in press. A review of the water mite family Anisitsiellidae in Australia (Acarina). *Invertebrate Taxonomy*.