
Research Articles

South African Acari. III. On the Mites of the Mountain Zebra National Park

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Ten new mite species are described and figured and new records of 19 mite species are given for the Mountain Zebra National Park. A check list is included.

Key words: Mountain Zebra National Park, mites, Prostigmata, Mesostigmata, Acari, check list.

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Introduction

For the past two decades, the arachnid fauna of various national parks in the Republic of South Africa has been surveyed at irregular intervals. The rich local mite fauna revealed many new host-plant and locality records, of which many were given in the taxonomic revisions of Van der Merwe (1968), Meyer (1974, 1979, 1987) and Meyer & Ueckermann (1987). Since 1965, two collecting trips have been made to the Mountain Zebra National Park (MZNP) by members of the Plant Protection Research Institute — in March 1965 by M.K.P. Smith Meyer, G.G. van der Merwe and T.J. Coates and in March 1986 by M.K.P. Smith Meyer and E.A. Ueckermann. These surveys indicated that the park's indigenous flora is host to many mites of agricultural importance. For information on mites as pests of crops, their biology, control and techniques for collection, as well as examination of mites, consult Meyer (1981).

Preliminary Check List of Acari in the Mountain Zebra National Park

Order Prostigmata Family Tetranychidae

1. *Bryobia geyeri* Meyer, 1974.
2. *B. neopraetiosa* Meyer, 1974.
3. *Tetranychus amicus* Meyer and Rodrigues, 1966.
4. *T. lombardini* Baker and Pritchard, 1960.
5. *Porcupinychus linearifoliae* Meyer, *spec. nov.*
6. *P. vestitae* Meyer, *spec. nov.*
7. *Eutetranychus rhusi* Meyer, *spec. nov.*

Family Tenuipalpidae

8. *Brevipalpus phoenicis* (Geijskes, 1939).
9. *Tenuipalpus calcarius* Meyer, *spec. nov.*

Family Cheyletidae

10. *Cheletacarus novemdentis* Meyer, *spec. nov.*

Family Stigmaeidae

11. *Agistemus africanus* (Meyer and Ryke, 1960).

Family Eupalopsellidae

12. *Eupalopsellus brevipilus* (Meyer and Ryke, 1960).

Family Anystidae

13. *Anystis baccharum* (Linn., 1758)
14. *Chaussieria venustissima* (Berlese, 1882).

Family Tydeidae

15. *Tydeus reticoxus* Ueckermann, *spec. nov.*
16. *T. rhusi* Ueckermann, *spec. nov.*
17. *T. fustis* Ueckermann, *spec. nov.*
18. *T. zebramontanus* Meyer, *spec. nov.*
19. *Triophyteus myacanthus* Ueckermann, *spec. nov.*

Order Mesostigmata

Family Phytoseiidae

20. *Amblyseius (A.) exiguus* Van der Merwe, 1908.
21. *A. (A.) messor* (Wainstein, 1960).
22. *A. (A.) krugeri* Van der Merwe, 1968.
23. *A. (A.) addoensis* Van der Merwe, 1964.
24. *Typhlodromus (Anthoseius) incisivus* Van der Merwe, 1968.
25. *T. (A.) paganus* Van der Merwe, 1968.
26. *T. (A.) praeacutis* Van der Merwe, 1968.
27. *T. (A.) lootsi* Shultz, 1972.
28. *T. (A.) capparidis* Van der Merwe, 1968.
29. *T. (T.) griekwensis* Schultz, 1973.

Material and Methods

This account probably represents only a small portion of the mite fauna of the Mountain Zebra National Park. The specimens were mainly collected by beating. The type material of the new species is deposited in the National Collection of Arachnida, Plant Protection Research Institute, Pretoria.

Species Accounts

Order Prostigmata

The notations of the dorsal body setae as used in the descriptions of the species are after Lindquist (1985). Unless otherwise stated all following are new records for the Mountain Zebra National Park.

Family Tetranychidae

The following known tetranychid species were collected in the Mountain Zebra National Park:

Bryobia geyeri Meyer, 1974.

This species is characterised by fused anteromedian lobes on the prodorsum; anteromedian prodorsal setae about half as long as second pair of prodorsal setae; true claws of leg I strongly hooked.

Bryobia geyeri was formerly collected on *Elytropappus rhinocerotis* (L.F.) Less. and *Vernonia fastigiata* Oliv. & Hiern. in the Cape Province and Transvaal. It was found in the MZNP on an unidentified wild plant on 6 March 1986 (M.K.P. Smith Meyer). This is a new location record.

Bryobia neopraetiosa Meyer, 1974.

Bryobia neopraetiosa may be recognised by the teat-like outer and the bottle-shaped inner lobes situated anteromedially on the prodorsum.

This species is widely distributed in South Africa, was previously collected on about 30 plant species and is known to damage lucerne and groundnuts. In the MZNP specimens were collected from *Diospyros austro-africana* De Winter var. *microphylla* (Burch.) De Winter on 5 March 1986 (M.K.P. Smith Meyer), which is a new host.

Tetranychus amicus Meyer and Rodrigues, 1966.

The aedeagus is distinctive in that the shaft curves dorsad at about a right angle, forming distally a large knob, about half the length of dorsal margin of shaft; rounded anterior projection of knob broader than base of acute caudal projection; male empodium I consists of 2 slender, tridigitate, proximoventral spurs and a minute mediadorsal spur; female opisthosomal striae with dorsal lobes narrow and triangular.

Tetranychus amicus was previously recorded (Meyer 1987) from about 20 plant species in the Cape Province, Transvaal and Natal. Meyer (1970) recorded this species from *Ballota africana* (L.) Benth. in the Mountain Zebra National Park. The following is a new host record: *Garuleum pinnatifidum* (Thunb.) D.C., 4 March 1986 (M.K.P. Smith Meyer).

Tetranychus lombardinii Baker and Pritchard, 1960.

The aedeagal shaft bends dorsad at about a right angle; anterior projection of

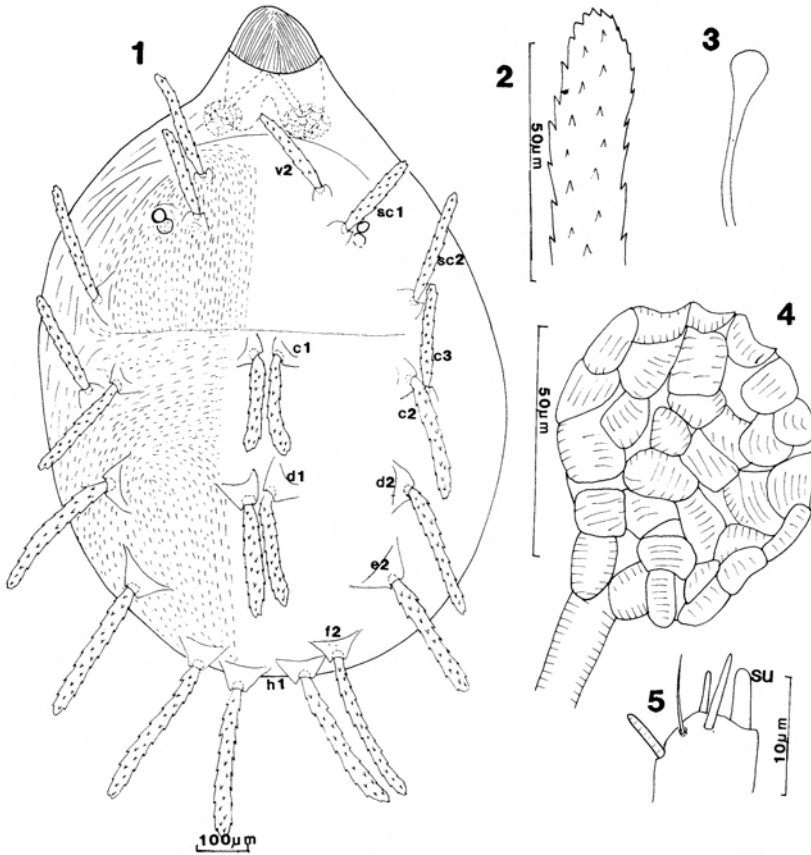


Fig. 1-5. *Porcupinychus linearifoliae* Meyer, *spec. nov.*, female.

Fig. 1. Dorsal view.

Fig. 2. Tip of dorsal seta.

Fig. 3. Spermatheca.

Fig. 4. Peritremal anastomosis.

Fig. 5. Palptarsus.

knob rounded and posterior projection small and acute; knob about one fourth to one fifth the length of dorsal margin of shaft; male empodium I with a minute mediodorsal spur; female opisthosomal striae with narrow, triangular lobes.

This species is widely distributed in Africa and is a pest of many crops. It was formerly recorded from *Morus japonica* in the MZNP (Meyer 1970).

Porcupinychus linearifoliae Meyer, *spec. nov.*

Figs. 1-5

Porcupinychus linearifoliae is related to *P. hermanniae* Meyer. However, it differs in that the second (d_1) pair of dorsocentral setae are much shorter than

the distances to bases of setae h_1 , whereas in *P. hermanniae* setae d_1 reach to bases of setae h_1 ; tibiae I–IV each with nine tactile setae, instead of 11 as in *P. hermanniae*.

Female. Dimensions of holotype (measurements following in parentheses are variations in paratypes): length of body (including gnathosoma) 507 μm (467–493); length (excluding gnathosoma) 393 μm (380–387); breadth 313 μm (293–300).

Dorsum (Fig. 1). Body setae coarsely serrate, bluntly tipped (Fig. 2) and situated on tubercles; first (v_2) and second (sc_1) pairs of prodorsal setae about equal in length and about three quarters the length of third pair (sc_2); humerals (c_3) about three quarters the length of first (c_2) pair of dorsolateral setae; first (c_1) and second (d_1) pairs of dorsocentral setae shorter than intervals between consecutive setae; dorsolateral setae (c_2 , d_2 and e_2) reach well beyond bases of setae next behind; integument finely striated.

Spermatheca. As depicted in Fig. 3.

Gnathosoma. Stylophore rounded anteriorly; peritreme terminates in an anastomosing, circular enlargement (Fig. 4); eupathidium (*su*) of palptarsus (Fig. 5) about three times as long as broad and about equal in length to proximodorsal solenidion (*W*).

Legs. Setae and solenidia (in parentheses) distributed on leg podomeres as follows: coxae 2–2–1–1; trochanters 1–1–1–1; femora 4–4–2–1; genua 3–3–2–2; tibiae 9(1)–9–9–9; tarsi 11(1)+2 dupl.–11(1)+1 dupl.–10(1)–10(1); duplex setae without small tactile member; tarsi I and II each with six tactile setae and one solenidion proximal to duplex setae; empodia and claws pad-like, each bearing a pair of tenent hairs.

Male. Unknown.

Deutonympha. Deutonympha differs from female in that second (sc_1) pair of prodorsal setae are shorter than first pair (v_2), the latter being about two thirds the length of second pair and legs have fewer setae.

Type data. Holotype female, 12 paratype females and two paratype deutonymphae from *Hermannia linearifolia* Harv., Mountain Zebra National Park (Cape Province), 4 March 1986 (E.A. Ueckermann).

Porcupinychus vestitae Meyer, *spec. nov.*

Figs. 6–9

This species is similar to *P. cuspidatus* Meyer, but differs in that tarsi I, III, IV and tibia I each bears 11 tactile setae; tarsus II with 12 tactile setae, instead of 10, 9 or 8 and 11 respectively.

Female. Dimensions of holotype (measurements following in parentheses are variations in paratypes): length of body (including gnathosoma) 393 μm (500); length (excluding gnathosoma) 373 μm (389); breadth 293 μm (287).

Dorsum (Fig. 6). body setae very long, coarsely serrate, taper distally (Fig. 7) and located on strong tubercles; first pair of prodorsal setae (v_2) the shortest, about three quarters the length of second pair (sc_1); all opisthosomal setae contiguous; integument indistinctly striated.

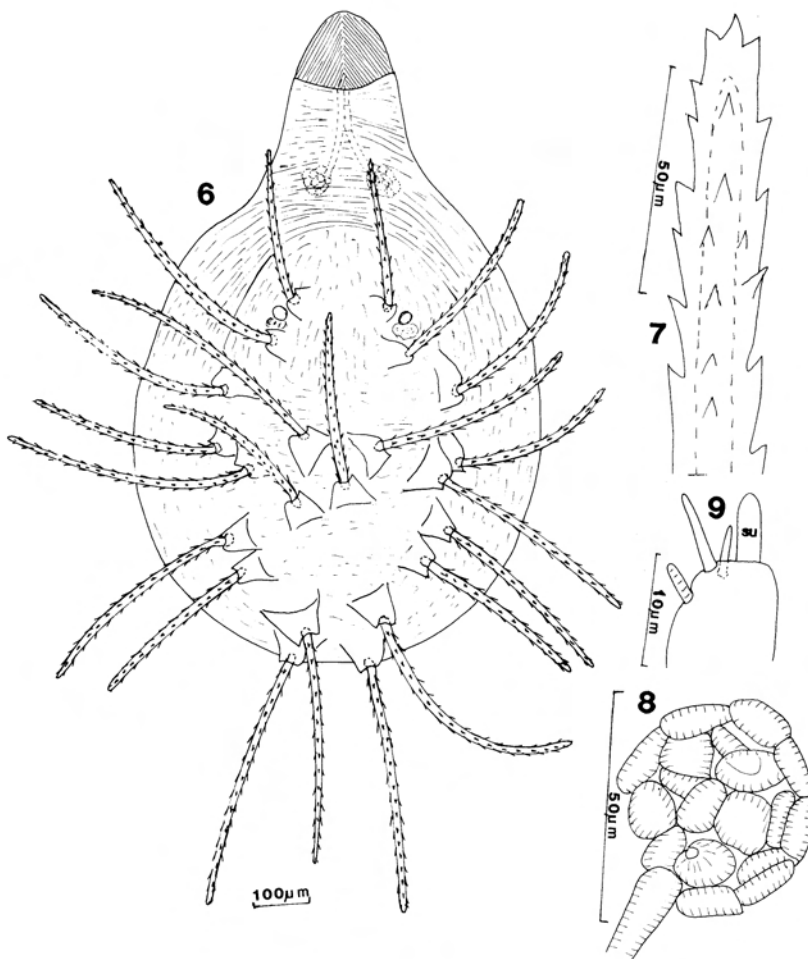


Fig. 6-9. *Porcupinychus vestitae* Meyer, *spec. nov.*, female.

Fig. 6. Dorsal view.

Fig. 7. Tip of dorsal seta.

Fig. 8. Peritremal anastomosis.

Fig. 9. Palptarsus.

Gnathosoma. Stylophore rounded anteriorly; peritreme ends in a rounded anastomosis (Fig. 8); eupathidium (*su*) on palptarsus slightly more than twice as long as broad and proximodorsal solenidion (*W*) about two thirds the length of eupathidium *su* (Fig. 9).

Legs. Inclusive counts of setae on leg segments are (solenidia in parentheses): coxae 2-2-1-1; trochanters 1-1-1-1; femora 4-4-3-3; genua 3-3-1-1; tibiae 11(1)-9 or 10-7-8; tarsi 11(1)+2 dupl. -12(1)+1 dupl. -11(1)-11(1); duplex setae without small tactile member; tarsi I and II each with seven tactile setae

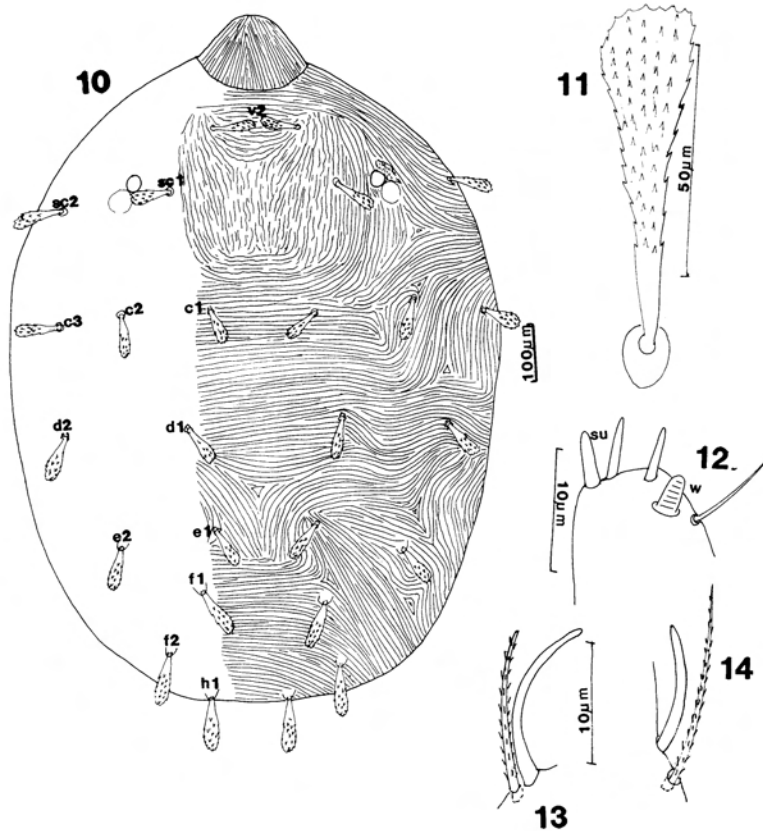


Fig. 10–14. *Eutetranychus rhusi* Meyer, *spec. nov.*, female.

Fig. 10. Dorsal view.

Fig. 11. Dorsal seta.

Fig. 12. Palptarsus.

Fig. 13. Associated setae on tarsus I.

Fig. 14. Associated setae on tarsus II.

and one solenidion proximal to duplex setae; empodia and claws pad-like, each bearing a pair of tenent hairs.

Male. Unknown.

Proto and Deutonymphae. Except for fewer leg setae, the nymphae are similar to the female.

Larva. Dorsum resembles that of female but has fewer leg setae and a smaller peritremal anastomosis.

Type data. Holotype female, one paratype female, nine paratype deutonymphae and one paratype larva from *Hermannia vestita* Thunb., Mountain Zebra National Park (Cape Province), 6 March 1986 (M.K.P. Smith Meyer).

Eutetranychus rhusi is similar to *E. namibianus* Meyer, but can be distinguished by the presence of seven setae on tibia III.

Female. Dimensions of holotype (measurements following in parentheses are variations in paratypes): length of body (including gnathosoma) 540 μm (500–536); length (excluding gnathosoma) 440 μm (400–430); breadth 327 μm (280–295).

Dorsum (Fig. 10). Dorsal body setae (Fig. 11) vary slightly in length and are subspatulate, serrate and some set on small tubercles.

Anteriorly, longitudinal striae on prodorsum sparsely covered with low, broad semicircular lobes, which are sometimes hardly more than an occasional incision in the striae; striae between second (d_1) and third (e_1) pairs of dorsocentral setae form a V-pattern; striae on opisthosoma devoid of lobes.

Gnathosoma. Stylophore rounded anteriorly and longer than broad; peritreme ends in a simple bulb; eupathidium (su) on palptarsus (Fig. 12) about three times as long as its greatest thickness; proximodorsal solenidion (W) about half the length of eupathidium (su).

Legs. Formulae for leg setae and solenidia (indicated parenthetically) as follows: coxae 2–2–1–1; trochanters 1–1–1–1; femora 7–6–2–1; genua 5–5–3–3; tibiae 9(1)–7–7–7 or 8; tarsi 15(2)–13(1)–10(1)–10(1); proximal tactile seta of loosely associated setae (Fig. 13) on tarsus I about three-quarters the length of solenidion (Fig. 13); on tarsus II solenidion shorter than proximal tactile seta (Fig. 14).

Male. Unknown.

Type data. Holotype female and three paratype females from *Rhus undulata* Jacq. var. *undulata*, Mountain Zebra National Park (Cape Province), 5 March 1986 (E.A. Ueckermann).

Family Tenuipalpidae

This family is represented by two species in the MZNP, one of which is new and is described below:

Brevipalpus phoenicis (Geijskes, 1939)

Brevipalpus phoenicis can be recognised by five pairs of dorsolateral setae, two solenidia on tarsus II and prodorsum with a weakly differentiated, thick walled reticulum medially.

This species is cosmopolitan in distribution and has a wide host plant range. It is of particular economic importance to citrus, tea and coffee. Its occurrence on *Clematis brachiata* Thunb., Wilgerboom River, Mountain Zebra National Park (Cape Province), 4 March 1986 (E.A. Ueckermann), is a new host plant record.

Tenuipalpus calcarius Meyer, *spec. nov.*

Figs. 15–17

This species belongs to the *T. albae* group of species (Meyer 1979) but can be distinguished from the other four species of this group by the dorsal integumentary pattern and the dorsal body setae, which are strongly calcarate.

Female. Dimensions of holotype: length of body (including gnathosoma) 314 μm ; length (excluding gnathosoma) 270 μm ; greatest width of body 185 μm .

Dorsum (Fig. 15). Dorsal integument strongly rugose; body setae strongly calcarate; opisthosoma with two pairs of dorsoventral setae (d_1 and f_1); three pairs of nonflagellate caudolateral setae (d_2 , e_2 and f_2) shorter than distances between their bases; penultimate pair of caudolateral setae (h_2) flagelliform.

Venter. Podosoma with one pair of anterior medioventral setae which are of medium length and one pair of very long posterior medioventral setae ($4a$); aggenital setae (ag) extend well beyond bases of genital setae (g_{1-2}), which are of medium length and sparsely setose (Fig. 16).

Gnathosoma. It extends to about middle of femur I; one pair of setae situated ventrally on gnathosoma; one-segmented palpus with a very long terminal solenidion or eupathidium, which measures 34 μm (Fig. 17).

Legs. Inclusive counts of setae and solenidia (in parentheses) on podomeres of legs I–IV: coxae 2–2–1–1; trochanters 1–1–0–0; genua 2–2–1–1; tibiae 5–5–3–3; tarsi 9?(1)–9?(1)–5–5.

Male. Unknown.

Type data. Holotype female and one paratype female from *Tarchonanthus camphoratus* L., Mountain Zebra National Park (Cape Province), 6 March 1986 (E.A. Ueckermann).

Family Cheyletidae

The family is represented by a new species which is described below.

Cheletacarus novemdentis Meyer, *spec. nov.*

Figs. 18–21

Cheletacarus novemdentis differs from the other known species in this genus by having nine basal teeth on the palptibial claw, 12 pairs of slightly barbed, dorsal body setae and a guard seta (ft) associated with solenidion *W*.

Female. Dimensions of holotype: length of body (including gnathosoma) 520 μm ; length (excluding gnathosoma) 320 μm ; breadth 267 μm ; leg I 207 μm .

Dorsum (Fig. 18). Prodorsal shield more or less rectangular and ornamented with poorly developed broken striae, bearing one pair of eyes, four pairs of setae laterally and one pair medially; humeral setae (c_3) located near posterior margin of prodorsal shield on small platelets; opisthosoma with five pairs of setae (d_2 , e_2 , f_2 and h_{1-2}) laterally and one pair (d_1) medially, situated on small platelets; all dorsal body setae relatively short, lanceolate and slightly barbed; except for a weakly striated, oval shield-like area between median dorsals (d_1) and outer dorsals (d_2) opisthosoma covered with strong smooth, sinuous striae.

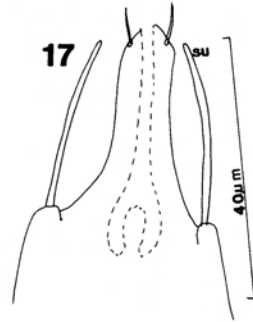
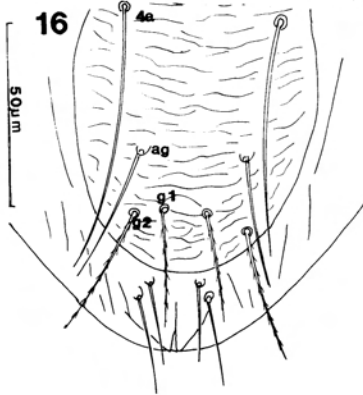


Fig. 15–17. *Tenuipalpus calcarius* Meyer, *spec. nov.*, female.
 Fig. 15. Dorsal view. Fig. 16. Genito-ventral area.

Fig. 17. Gnathosoma.

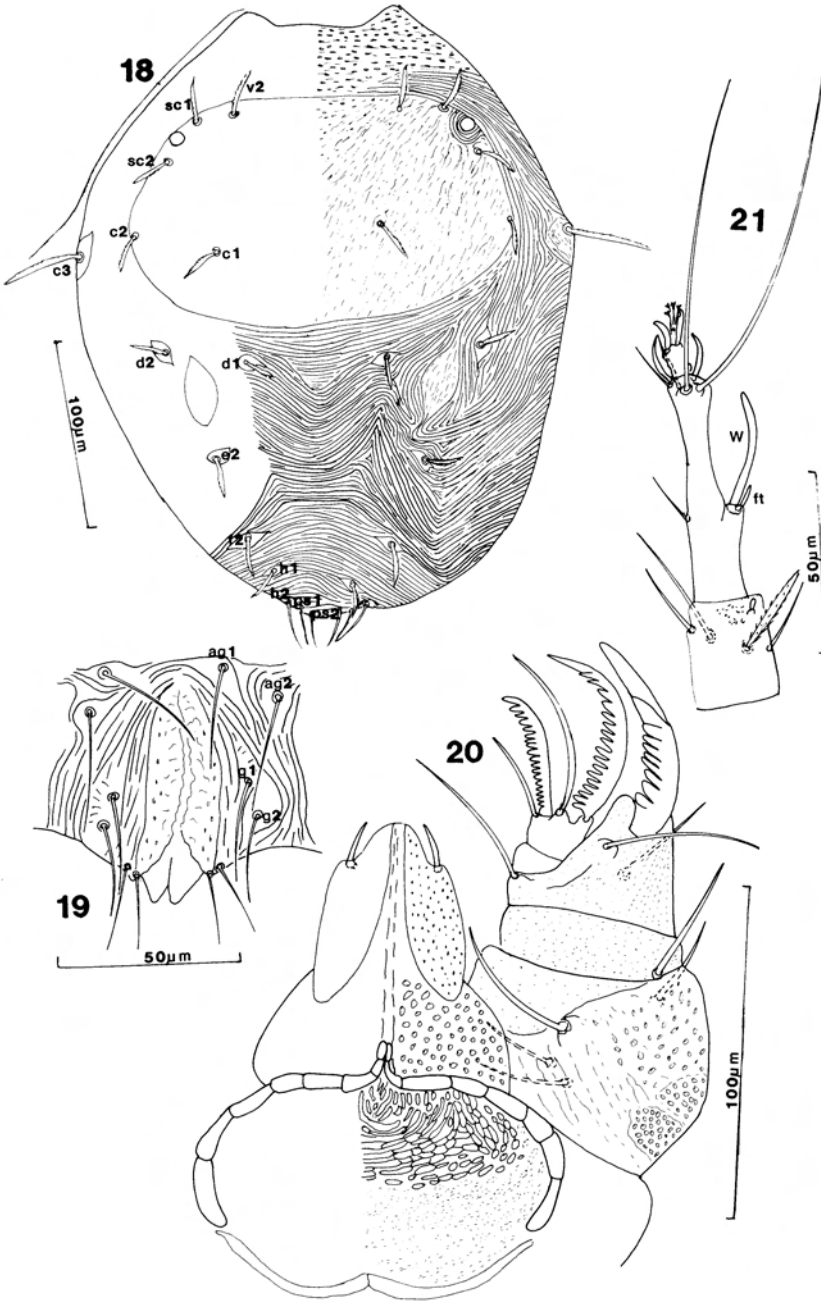


Fig. 18-21. *Cheletacus novemdentis* Meyer, *spec. nov.*, female.

Fig. 18. Dorsal view.
 Fig. 20. Gnathosoma.

Fig. 19. Anogenital area.
 Fig. 21. Tibia and tarsus I.

Venter. Coxal fields I and II coalesced with each other, but separate mesally, I bearing setae *1b-c*; II bearing seta *2b*; coxal fields III and IV also coalesced but separate mesally and from anterior coxal group; III bearing setae *3b-c*; IV with *4b-c*; setae *1a*, *2a*, *3a* and *4a* present on striated integument; setae *2a* flagelliform and about twice as long as other ventral setae; two pairs of aggenital setae (*ag₁₋₂*) situated on small platelets; two pairs of genital setae (*g₁₋₂*) on genital flaps (Fig. 19).

Gnathosoma (Fig. 20). Tegmen with reticulations which fade proximally; protegmen with smaller reticulations; peritremes shaped like an inverted U; posteriorly directed arms comprise eight chambers; the ornamented palpfemur with four setae; palpgenu with a single dorsal seta; palptibia with three setae and a claw, bearing about nine basal teeth; palptarsus with two comb and two sickle-like setae; outer comb with about 17 teeth and inner comb with about 20 teeth.

Legs. Numbers of setae and solenidia (indicated parenthetically) on leg podomeres as follows: femora 2-2-1-1; genua 2-2-2-1; tibiae 4(1)-4-4-4; tarsi 8(1)-7(1)-7-7; each of tibiae III and IV with a flagelliform seta in addorsal position; solenidion *W* about half as long as tarsus I (Fig. 21) and accompanied by a guard seta (*ft*).

Nympha. The nympha closely resembles the female in the organisation of the dorsum and legs. However, the gnathosoma differs in that the right palpal tibial claw bears eight basal teeth and the left one three basal teeth.

Male. Unknown.

Type data. Holotype female and one paratype nympha from *Lycium cinereum* Thunb., Mountain Zebra National Park (Cape Province), 5 March 1986 (E.A. Ueckermann).

Family Stigmaeidae

Agistemus africanus (Meyer and Ryke, 1960).

This species has setae *e*, (*c* of Grandjean 1944) on the median opisthosomal shield closer together than setae *c*₁, (*a* of Grandjean 1944) and smooth dorsal shields.

Agistemus africanus is a predacious mite, which is widely distributed in South Africa and was collected from a wide range of plant species. Meyer (1970) recorded it from the MZNP collected on *Diospyros lycioides* Desf., *Fingerhuthia africana* Lehm. and *Protasparagus plumosus* (Bak.) Oberm.

Family Eupalopsellidae

This predacious family is represented by one species in the Mountain Zebra National Park.

Eupalopsellus brevipilus (Meyer and Ryke, 1960).

This species is characterised by reticulated dorsal shields and strong, serrated dorsal body setae.

Eupalopsellus brevipilus is common in South Africa and occurs on a wide range of plant species (Meyer & Ueckermann 1984). It was formerly recorded from the Mountain Zebra National Park on *Rhus lancea* L.F. (Meyer 1970).

Family Anystidae

Anystis baccharum (Linn., 1758).

Anystis baccharum has a smooth prodorsal shield, rounded anteriorly and indented posteriorly; the peritremes flare distally.

This cosmopolitan predacious mite is widely distributed in South Africa and occurs on many plants. In the MZNP *A. baccharum* was found on *Rhus lancea* L.F., *Grewia occidentalis* L., *Tarchonanthus camphoratus* L., *Melianthus* sp., *Diospyros lycioides* Desf. subsp. *lycioides*, *Sutera argentea* (L.F.), *Gomphostigma virgatum* (L.F.) Baill., *Walafrida saxatilis* (E. Mey) Rolfe, *Garuleum pinnatifidum* (Thunb.) D.C. and *Rhus pyroides* Burch.

Chaussieria venustissima (Berlese, 1882)

This species is characterised by a pentagonal prodorsal shield, bearing serrate setae (*na* and *nb*) and a pair of sensilla (*sp*); an inconspicuous reticulated pattern occurs laterally on each side of the prodorsal shield.

This mite occurs on many plant species in South Africa (Meyer & Ueckermann 1987). In the MZNP it was found on *Cliffortia* sp.

Family Tydeidae

The Tydeidae is a large cosmopolitan family which has been recorded as predators, plant feeders and scavengers. Five new species are described here for the first time.

Tydeus reticoxus Ueckermann, *spec. nov.*

Figs. 22–29

This species has the following diagnostic characteristics: sensilla (*s*) more than twice as long as other dorsal body setae, palptarsus with six setae (including eupathidia) and one small solenidion; coxae of legs reticulated.

Male. Dimensions of holotype: length of body (including gnathosoma) 419 μm ; length (excluding gnathosoma) 372 μm ; leg I 230 μm ; leg II 180 μm ; leg III 180 μm ; leg IV 214 μm ; setae v_2 , sc_1 , c_1 , d_1 and d_2 16 μm ; sc_2 , e_1 , f_1 and h_1 19 μm ; e_2 and f_2 22 μm ; *S* 47 μm .

Dorsum (Fig. 22). Dorsal body setae lanceolate and serrate (Fig. 23); sensilla (*s*) smooth and whiplike (Fig. 24); striae with acute lobes (Fig. 25).

Venter (Fig. 29). Anogenital area with 4 pairs of aggenital setae (ag_{1-4}), six pairs of genital setae (g_{1-6}) and 1 pair of anal setae (*ps*); progenital aperture with 4 pairs of feathered eugenital setae; striae longitudinal between ventral setae *3a* and *4a*.

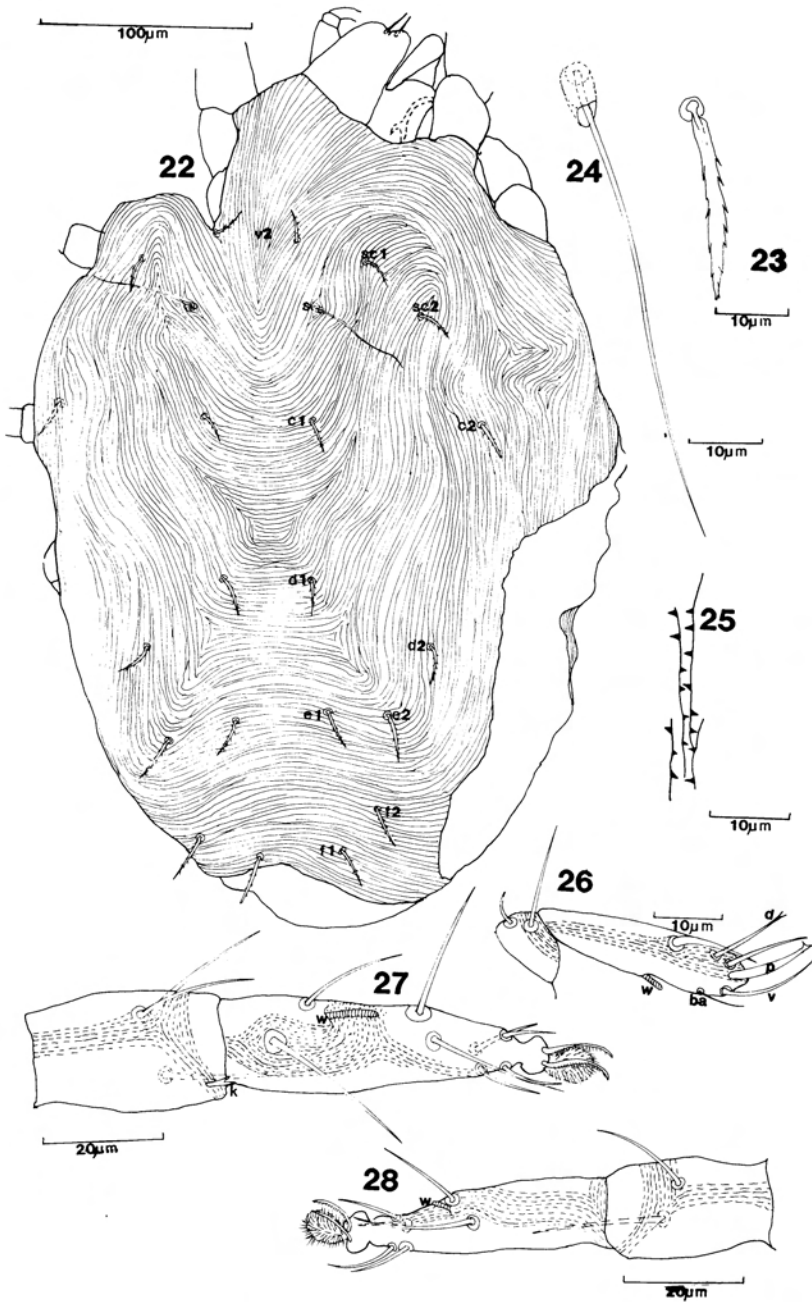


Fig. 22–29. *Tydeus reticoxus* Ueckermann, *spec. nov.*, male.

Fig. 22. Dorsal view.

Fig. 24. Sensillum *s*.

Fig. 26. Palpus.

Fig. 28. Tarsus and tibia II.

Fig. 23. Dorsal seta *d*₂.

Fig. 25. Lobes on dorsal striae.

Fig. 27. Tarsus and tibia I.

Fig. 29. Ventral view.



Gnathosoma. Palpus (Fig. 26) with a setal formula (solenidion in parentheses) of 6(1)–2–2; terminal eupathidium bidentate, seta *d* forked and seta *ba* short and slender; palptarsus 1,6 times longer than movable chelae.

Legs. Setal formulae of podomeres as follows (with solenidia in parentheses): coxae 2–1–3–1; trochanters 1–0–1–0; femora 3–2–1–1; genua 3–2–1–1; tibiae 4–2–2–2; tarsi 8(1)–6(1)–5–5; fourth seta on tibia I is a small forked seta (*k*), as depicted in Fig. 27; empodial claws absent; solenidion (*w*) on tarsus I about half the width of tarsus (Fig. 27); solenidion on tarsus II much shorter (Fig. 28); coxae I and II with distinct reticulations whereas the reticulations on coxae III and IV are faint (Fig. 29).

Type data. Holotype male from *Protasparagus laricinus* (Burch.) Oberm., Mountain Zebra National Park (Cape Province), 6 March 1986 (E.A. Ueckermann).

This species keys out to *Tydeus oregonensis* in Baker (1970), but differs from the latter in that the sensilla (*s*) are subequal in length to the rest of the dorsal body setae and palptarsus with six setae.

Female. Dimensions of holotype: length of body (including gnathosoma) 510 μm ; length (excluding gnathosoma) 466 μm ; breadth 406 μm ; leg I 303 μm ; legs II and III 239 μm ; leg IV 249 μm .

Dorsum (Fig. 38). Dorsal body setae long, slender and serrate (Fig. 30); sensilla (*s*) slender and subequal in length to other dorsal body setae (Fig. 31); body setae (including sensilla) vary in length from 32 to 41 μm ; lobes on striae triangular (Fig. 32).

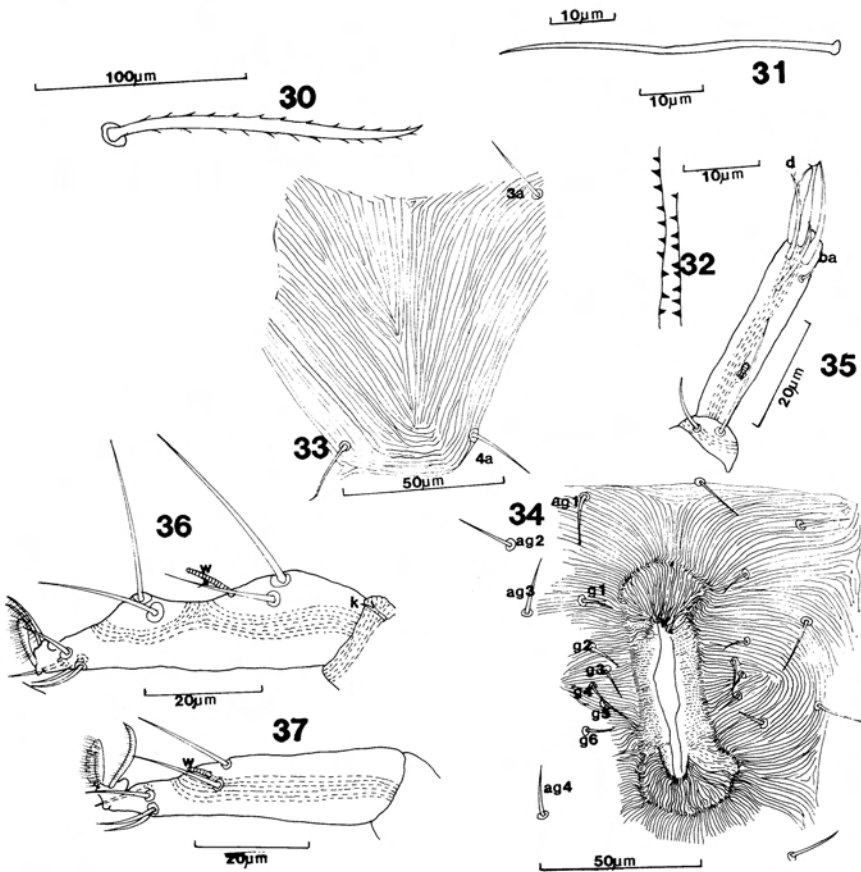


Fig. 30–38. *Tydeus rhusi* Ueckermann, *spec. nov.*, female.

Fig. 30. Dorsal seta *sc*₂.

Fig. 32. Lobes on dorsal striae.

Fig. 34. Genital opening.

Fig. 36. Tarsus and tibia I.

Fig. 38. Dorsal view.

Fig. 31. Trichobothria *S*.

Fig. 33. Striae between ventral setae *3a* and *4a*.

Fig. 35. Palpus.

Fig. 37. Tarsus and tibia II.

Venter. Striae between ventral setae *3a* and *4a* V-shaped (Fig. 33); anogenital area with four pairs of aggenital (ag_{1-4}), six pairs of genital setae (g_{1-6}) and one pair of anal setae *ps* (Fig. 34).

Gnathosoma. Movable chelae half the length of palptarsus; setal formula of palpus (solenidion in parentheses) is 6(1)-2-2; terminal eupathidium bidentate distally, whereas seta *d* is forked (Fig. 35); seta *ba* very short and slender.

Legs. Distribution of leg setae and solenidia (in parentheses) are: coxae 2-1-3-1; trochanters 1-0-1-0; femora 3-2-1-1; genua 3-2-1-1; tibiae 4-2-2-2; tarsi 8(1)-6(1)-5-5; seta *k* on tibia I forked (Fig. 36); solenidion on tarsus I long and slender (Fig. 36); solenidion *W* on tarsus II very short (Fig. 37); empodial claws absent.

Type data. Holotype female from *Rhus lancea* L.F., Mountain Zebra National Park (Cape Province), 28 January 1965 (G.G. van der Merwe).



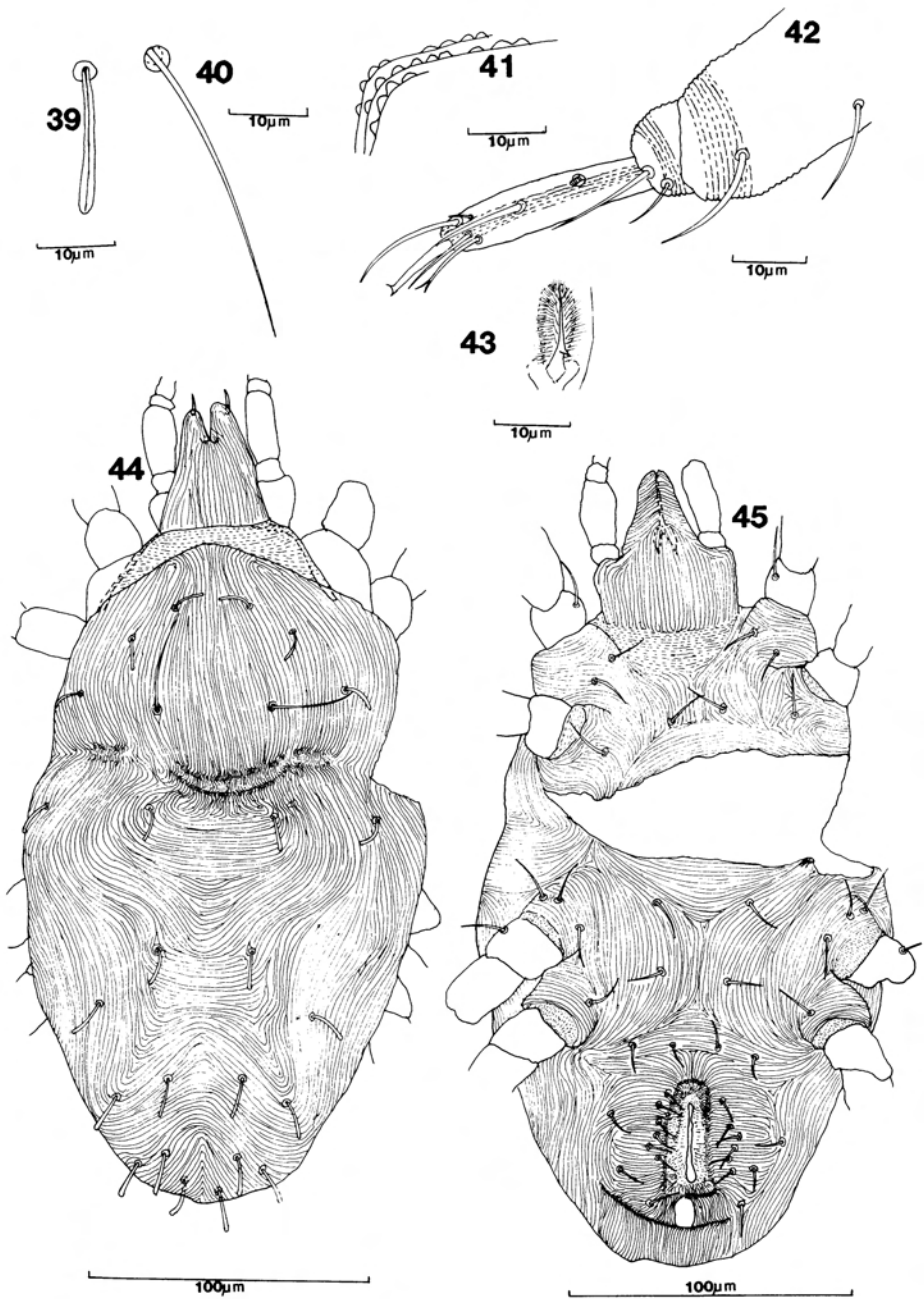


Fig. 39-47. *Tydeus fustis* Ueckermann, *spec. nov.*, female.

Fig. 39. Dorsal seta f_1 .

Fig. 41. Lobes on dorsal striae.

Fig. 43. Empodium.

Fig. 45. Ventral view.

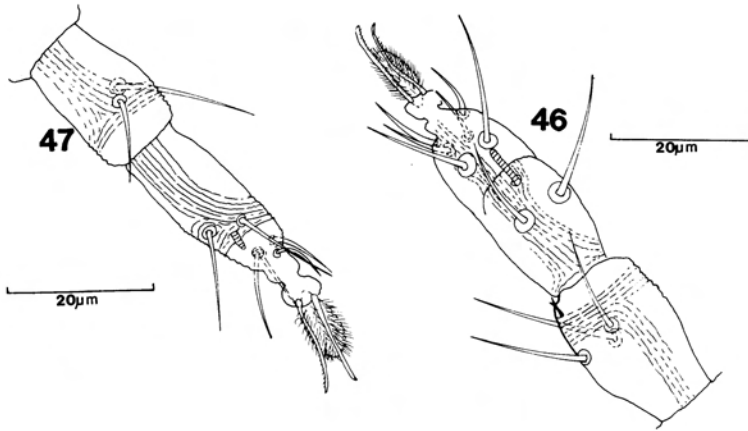
Fig. 47. Tarsus and tibia II.

Fig. 40. Sensillum s .

Fig. 42. Palpus.

Fig. 44. Dorsal view.

Fig. 46. Tarsus and tibia I.



Tydeus fustis Ueckermann, *spec. nov.*

Figs. 39–47

This species resembles *T. costaricensis* Baker in having clublike dorsal body setae. However, it differs from the latter in that the palptarsus is three times longer than the palptibia, instead of twice; movable chelae much shorter and femora II with three setae instead of two.

Female. Dimensions of holotype (measurements following in parentheses are variations in paratype): length of body (including gnathosoma) 293 μm ; length (excluding gnathosoma) 246 μm ; breadth 145 μm ; leg I 148 μm (170); leg II 123 μm (145); leg III 129 μm (154); leg IV 132 μm (151).

Dorsum (Fig. 44). Dorsal body setae club-shaped (Fig. 39), with those on opisthosoma stronger than those on prodorsum; sensilla (Fig. 40) about 35 μm , which are about twice the lengths of other dorsal setae (13–17 μm); lobes on striae semilunar (Fig. 41).

Venter (Fig. 45). There are three pairs of ventral setae (*1a*, *3a* and *4a*), four pairs of aggenitals (*ag*_{1–4}), six pairs of genitals (*g*_{1–6}) and one pair of anal setae (*ps*).

Gnathosoma. Setal formula of palpus (solenidion in parentheses) 6(1)–2–2; movable chelae slightly longer than half the length of palptarsus (Fig. 42); terminal eupathidium bidentate distally, seta *d* forked and *ba* very short.

Legs. Setal formulae of leg podomeres (solenidia in parentheses) are: coxae 2–1–3–1; trochanters 1–0–1–0; femora 3–3–1–1; genua 3–2–1–1; tibiae 4–2–2–2; tarsi 8(1)–6(1)–5–5; solenidion on tarsus I (Fig. 46) twice as long as solenidion on tarsus II (Fig. 47); empodial claws present (Fig. 43).

Type data. Holotype female from *Athrixia heterophylla* (Thunb.) Less., Mountain Zebra National Park (Cape Province), 6 March 1986 (M.K.P. Smith Meyer); one paratype female from *Diospyros austro-africana* De Winter var. *microphylla* (Burch.) De Winter, Mountain Zebra National Park (Cape Province), 5 March 1986 (M.K.P. Smith Meyer).

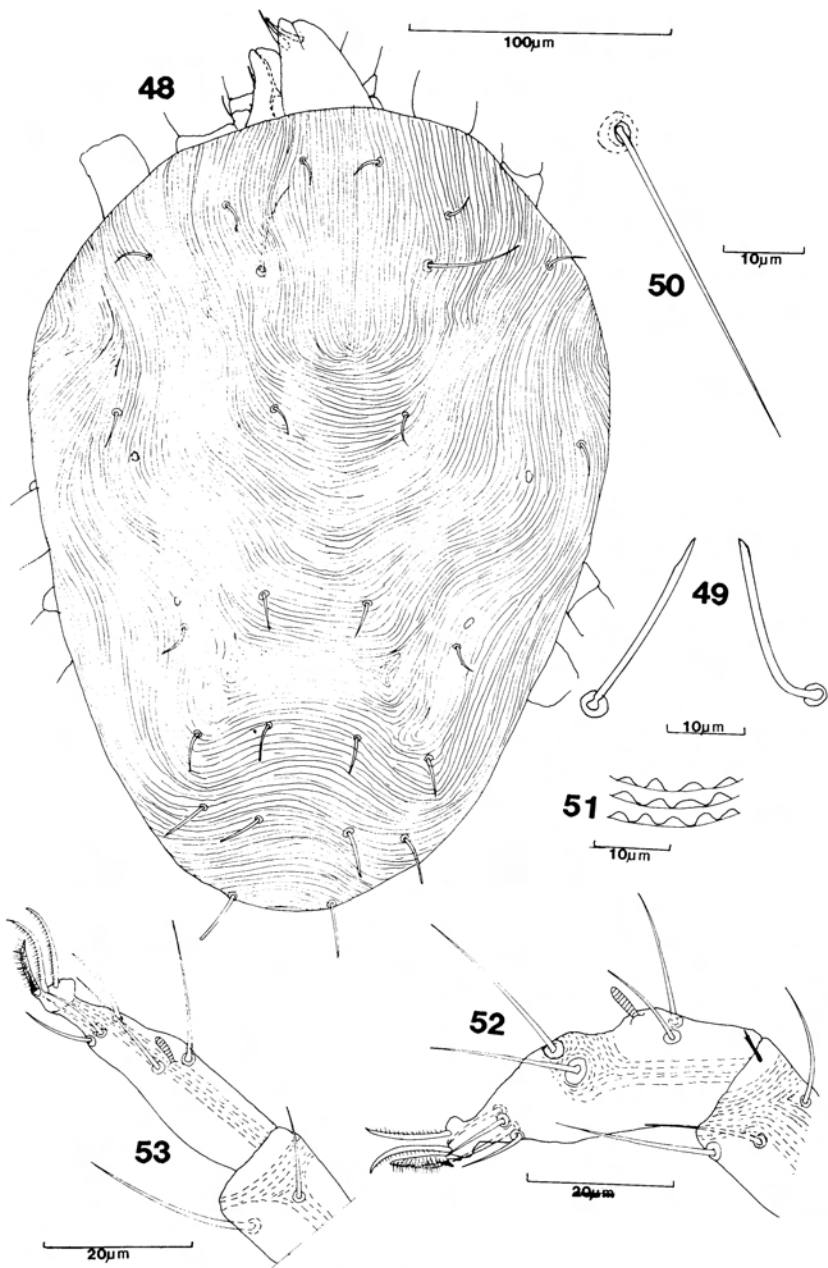


Fig. 48–56. *Tydeus zebramontanus* Meyer, *spec. nov.*

Fig. 48. Dorsal view of female.

Fig. 50. Sensillum *s.*

Fig. 52. Tarsus and tibia I of female.

Fig. 54. Ventral view of female.

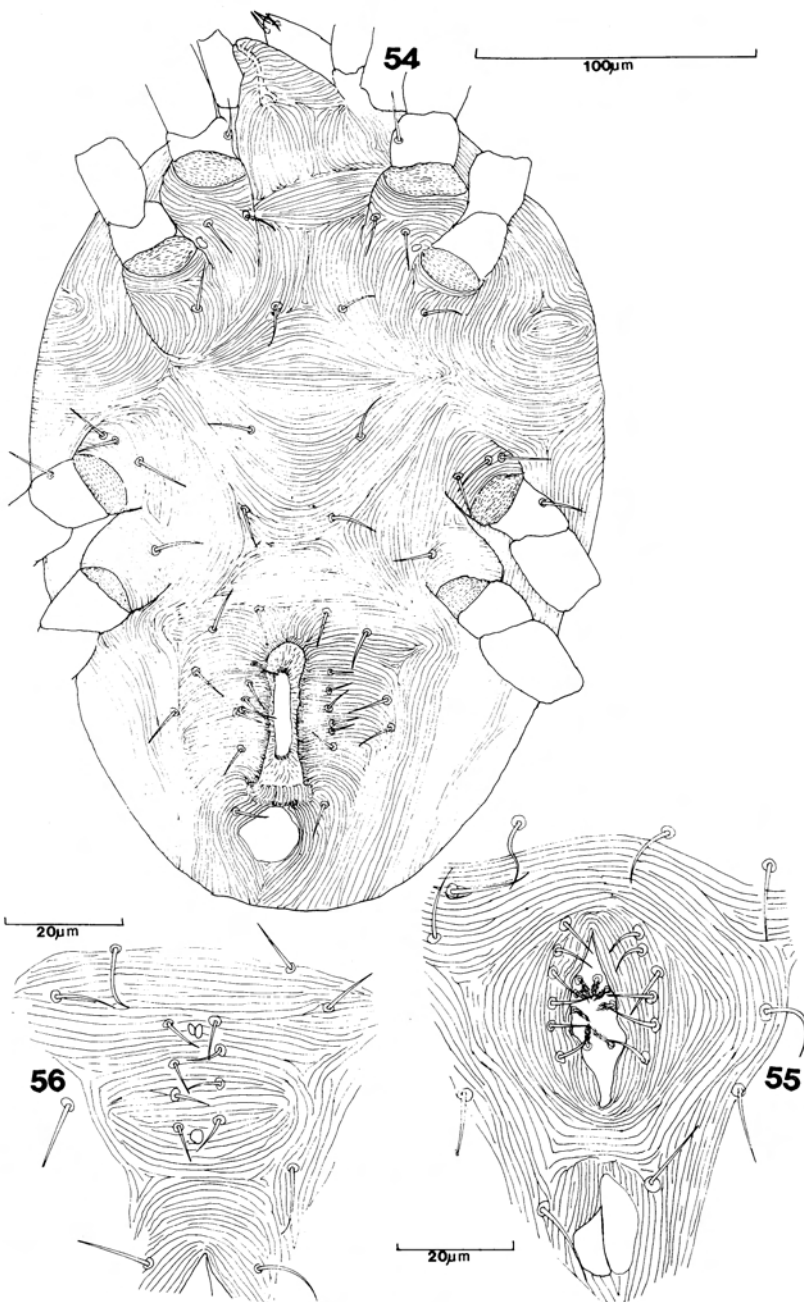
Fig. 56. Genital opening of nympha.

Fig. 49. Dorsal setae f_1 of female.

Fig. 51. Lobes on dorsal striae of female.

Fig. 53. Tarsus and tibia II of female.

Fig. 55. Genital opening of male.



Tydeus zebramontanus Meyer, spec. nov.

Figs. 48–56

Tydeus zebramontanus closely resembles *T. placitus* Livshitz, in having minute empodial claws and short, dorsal body setae. However, it differs from the latter species in that the ventral striae between setae 3a and 4a are a wide V-pattern and not a sharp V.

Female. Dimensions of holotype (measurements in parentheses are variations in paratypes): length of body (including gnathosoma) 324 μm (331–334); length (excluding gnathosoma) 285 μm (281–290); breadth 205 μm (176–186); leg I 173 μm (167–170); leg II 154 μm (139–151); leg III 158 μm (148–160); leg IV 154 μm (148–170).

Dorsum (Fig. 48). Setae on dorsum short, vary in length from 13 to 20 μm and inconspicuously serrated (Fig. 49); posteriorly setae somewhat longer than those on rest of body; sensilla (*s*) smooth and about 35 μm long (Fig. 50); opisthosoma with nine pairs of setae (*h*₂ absent); prodorsum with longitudinal striae; dorsomedian striae on opisthosoma broadly arched posteriorly to setae *d*; lobes on striae broadly triangular to rounded (Fig. 51).

Venter (Fig. 54). Striae forming a broad V-pattern between setae 3*a* and 4*a*; there are six pairs of genital (*g*_{1–6}), four pairs of aggenital (*ag*_{1–4}) and one pair of anal setae (*ps*).

Gnathosoma. Chaetotaxy of palp (solenidion indicated parenthetically) 6(1)–2–2; terminal eupathidium bidentate distally; seta *ba* vestigial.

Legs (Fig. 52–53). Setae and solenidia (in parentheses) distributed on leg podomeres as follows: coxae 2–1–3–1; trochanters 1–0–1–0; femora 3–3–2–1; genua 3–2–1–1; tibiae 3–2–2–2; tarsi 8(1)–6(1)–5–5; empodia with small basal claws (Fig. 52).

Male. Dimensions: length of body (including gnathosoma) 296–306 μm ; length (excluding gnathosoma) 249–268 μm ; breadth 164–189 μm ; leg I 164–176 μm ; leg II 139–145 μm ; leg III 145–149 μm ; leg IV 148–151 μm .

Dorsal and ventral aspects of male similar to female, but differs in that the genital aperture carries 4 pairs of plumose eugenital setae (Fig. 55).

Nympha. Dimensions: length of body (including gnathosoma) 284 μm ; length (excluding gnathosoma) 246 μm ; breadth 183 μm ; leg I 151 μm ; leg II 129 μm ; leg III 123 μm ; leg IV 126 μm .

Nympha similar to female except for its smaller size and in the progenital opening consists of three genital pores, which are surrounded by four pairs of genital and three pairs of aggenital setae (Fig. 56).

Type data. Holotype female and one paratype female from *Pentzia punctata* Harv., Mountain Zebra National Park (Cape Province), 6 March 1986 (E.A. Ueckermann); one paratype female and one paratype male from *Lycium cinereum* Thunb., Mountain Zebra National Park, 5 March 1986 (E.A. Ueckermann); one paratype female, two paratype males and one paratype nympha from *Protasparagus larcinus* (Burch.) Oberm., Mountain Zebra National Park, 6 March 1986 (E.A. Ueckermann).

Triophydeus myacanthus Ueckermann, *spec. nov.*

Figs. 57–63

This species has, like *T. tilbrooki* (Strandtmann) 12 setae on tarsus I. However, it differs from the latter in that tibiae I and II bear four (including seta *k*) and two, instead of five and three setae respectively. It further differs in that all the dorsal body and leg setae are pilose.

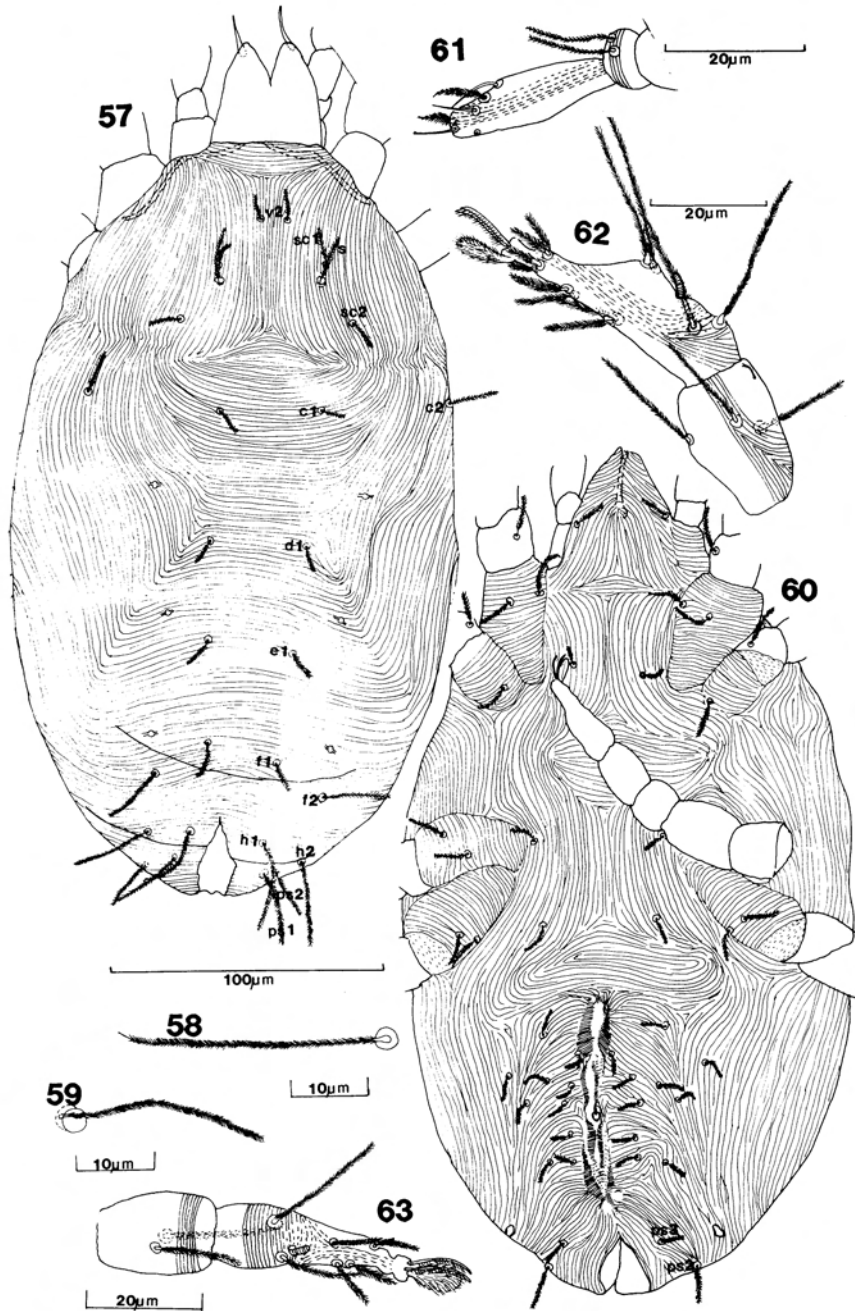


Fig. 57-63. *Triophtydeus myacanthus* Ueckermann, *spec. nov.*, female.

Fig. 57. Dorsal view.

Fig. 59. Sensillum s.

Fig. 61. Palpus

Fig. 63. Tarsus and tibia II.

Fig. 58. Dorsal seta f₂.

Fig. 60. Ventral view.

Fig. 62. Tarsus and tibia I.

Female. Dimensions of holotype (measurements following in parentheses are variations in paratypes) length of body (including gnathosoma) 302 μm (227–315); length (excluding gnathosoma) 267 μm (222–281); breadth 161 μm (113–164); leg I 173 μm (151–179); leg II 135 μm (104–139); leg III 139 μm (113–145); leg IV 173 μm (140–171); setae v_2 , sc_2 , c_1 and e_1 13 μm (9–19); sc_1 and d_1 9 μm (8–13); s 22 μm (19–26); c_2 and ps_2 19 μm (13–22); f_1 16 μm (13–22); f_2 28 μm (19–25); h_1 and h_2 and 38 μm (22–35); ps_1 32 μm (19–22).

Dorsum (Fig. 57). All dorsal body setae (Fig. 58) and sensilla (Fig. 59) pilose; most of these setae are short, except for setae c_2 , h_{1-2} and ps_1 which are twice the length of the other setae; striae smooth; setae sc_1 and sensilla s close together; eyes could not be observed.

Venter (Fig. 60). Three ventral setae ($1a$, $3a$ and $4a$), five pairs of aggenital (ag_{1-5}), five pairs of genital (g_{1-5}), two pairs of anal setae (ps_{2-3}) and one eugentital seta are present on venter; all setae pilose.

Gnathosoma. Setal formula of palp 5–2–2; three of the five setae on palptarsus nude whereas other two are plumose (Fig. 61); distal eupathidium inconspicuously tridentate; seta ba absent or vestigial; seta d plumose.

Legs. Distribution of leg setae and solenidia (in parentheses) is: coxae 2–1–2–2; trochanters 1–1–1–0; femora 5–4–3–3; genua 3–2–2–2; tibiae 4–2–2–2; tarsi 12(1)–6(1)–5–5; empodia and claws on tarsi hairy; solenidia on tarsus I (Fig. 62) and tarsus II (Fig. 63) very short; femur IV divided into a basi and telofemur, bearing two and one setae respectively.

Male. Dimensions: length of body (including gnathosoma) 224–284 μm ; length (excluding gnathosoma) 199–252 μm ; breath 107–148 μm ; leg I 142–167 μm ; leg II 95–123 μm ; leg III 110–139 μm ; leg IV 130–164 μm ; setae v_2 , sc_1 , c_1 , d_1 and e_1 9–13 μm ; sc_2 13–16 μm ; S 19–27 μm ; f_1 , c_2 and ps_2 13–19 μm ; h_1 14–28 μm ; h_2 19–35 μm ; f_2 19–25 μm ; ps_1 11–25 μm .

Male differs from female in that progenital opening bears six feathered eugentital setae (eu), five smooth genital setae (g) and five pilose aggenital setae (ag).

Tritonympha. Dimensions: length of body (including gnathosoma) 198–208 μm ; length (excluding gnathosoma) 176 μm ; width 88–95 μm ; leg I 114 μm ; leg II 85–95 μm ; leg III 91 μm ; leg IV 105 μm ; setae v_2 , sc_{1-2} , c_1 , d_1 and e_1 6–9 μm ; S 19 μm ; f_1 , h_1 , ps_1 and c_2 13–16 μm ; f_2 and h_2 19 μm ; ps_2 9–13 μm .

Tritonymph differs from female in that progenital opening consists of four pores, three genital setae (g) and four aggenital setae (ag).

Type data. Holotype female from *Protasparagus laricinus* (Burc.) Oberm., Mountain Zebra National Park (Cape Province), 6 March 1986 (E.A. Ueckermann); one paratype female and one paratype male from *Acacia karroo* Hayne, Laersdrift (Transvaal); 10 January 1979 (E.A. Ueckermann); one paratype female and male from *Myrsine africana* L., Giant's Castle Nature Reserve (Natal), 3 February 1982 (M.K.P. Smith Meyer); four paratype females, two paratype males, one paratype tritonymph and one paratype deutonymph from *Protea roupelliae* Meisn., Giant's Castle Nature Reserve (Natal), 2 February 1982 (M.K.P. Smith Meyer); one paratype male from *Conyza floribunda* H.B.K., Debegeni Water Falls (Transvaal), 8 May 1981

(E.A. Ueckermann); two paratype females from *Strychnos madagascariensis* Poir., 55 km from Piet Retief to Pongola (Transvaal), 19 August 1980 (E.A. Ueckermann); one paratype female from *Psidium guajava* L., 55 km from Piet Retief to Pongola (Transvaal), 19 August 1980 (M. Samways); one paratype male from *Rhus* cf. *scytophylla* Eckl. and Zeyh., Muizenberg, Cape Town, 21 January 1980 (E.A. Ueckermann); two paratype females from *Acacia dealbata* Link, Laersdrift (Transvaal), 25 January 1979 (E.A. Ueckermann); one paratype female from *Barleria obtusa* Nees, Laersdrift (Transvaal), 25 January 1979 (E.A. Ueckermann); two paratype males from *Rhamnus prinoides* L'Hérit, Laersdrift (Transvaal), 10 January 1979 (E.A. Ueckermann); one paratype male from *Protea* sp., Loteni Nature Reserve (Natal), 27 December 1978 (E. van den Berg); three paratype females and one paratype male from *Buddleja salvifolia* (L.) Lam., Loteni Nature Reserve (Natal), 25 December 1978 (E. van den Berg); one paratype female from *Carrisa haematocarpa* (Eckl.) A.DC., Sundays River Agricultural Research Station, Addo (Cape Province), 6 December 1977 (M.K.P. Smith Meyer); one paratype female and male from *Metalasia muricata* (L.) D. Don, Cape Point (Cape Province), 4 March 1976 (L.C. Jordaan); one paratype male from *Rhus lucida* L. var. *lucida*, Gordon's Bay (Cape Province), 2 March 1976 (L.C. Jordaan); one paratype female from *Ziziphus mucronata* Willd., 25 km south of Louis Trichardt (Transvaal), 23 February 1976 (L. Venter); one paratype female from *Senecio brachypodus* DC., Jeffrey's Bay (Cape Province), 29 November 1975 (L.C. Smit); two paratype females from *Capparis sepiaria* L. var. *citrifolia* (Lam.) Toelken, Addo Elephant National Park (Cape Province), 14 February 1974 (F.W. Schultz); one paratype female from *Senecio mikanoides* Otto, Addo Elephant National Park (Cape Province), 14 February 1974 (C.J. Colijn); one paratype male from *Protasparagus capensis* (L.) Oberm., Addo Elephant National Park (Cape Province), 14 February 1974 (L.C. Smit); three paratype females from *Cineraria lobata* (L'Hérit, Komga River, between Grahamstown and Port Elizabeth (Cape Province), 13 February 1974 (C.J. Colijn).

Order Mesostigmata

Notations of dorsal body setae as used here are after Rowell, Chant and Hansell (1978).

Family Phytoseiidae

In the Mountain Zebra National Park this important predacious family was represented by 10 species.

Amblyseius (*A.*) *exiguus* Van der Merwe, 1968.

This species can be recognised by an elongated dorsal shield, bearing generally short setae, except for setae Z_4 and Z_5 which are relatively longer and serrated; cervix of spermatheca constricted distally, with proximal three quarters tubular; leg IV bears only one macroseta.

It is widely distributed in South Africa and occurs on many plants in association with members of the Tenuipalpidae, Tydeidae, Cheyletidae, Stigmaeidae and Cunaxidae. New host records from the MZNP are: *Diospyros austro-africana* De Winter var. *microphylla* (Burch.) De Winter, 5 March 1986 (M.K.P. Smith Meyer); *Felicia filifolia* (Vent.) Burt Davy subsp. *filifolia*, 5 March 1986 (E.A. Ueckermann); *Hermannia vestita* Thunb., 5 March 1986 (M.K.P. Smith Meyer).

Amblyseius (A.) messor (Wainstein, 1960)

In this species setae s_4 , Z_{4-5} are relatively long, setae S_4 half the length of S_5 ; fixed digit of chelicera with four teeth and a pilus dentilis; movable digit of chelicera with a single tooth on inner margin.

Amblyseius messor is a cosmopolitan species formerly recorded from grass and *Populus* sp. in the Cape Province. A new host and distribution record is from *Diospyros austro-africana* De Winter var. *microphylla* (Burch.) De Winter, Mountain Zebra National Park (Cape Province), 5 March 1986 (M.K.P. Smith Meyer).

Amblyseius (A.) krugeri Van der Merwe, 1968.

All the dorsal body setae of *A. krugeri* are relatively short, except for the much longer setae Z_{4-5} which are also serrated; spermatheca characterised by a long, slender major duct, a bell-shaped cervix and atrium, fully occupied by the lips; leg IV with three macrosetae; genu II with eight setae instead of the normal seven.

This species is widely distributed in South Africa and has been collected on 12 plant species in association with species of the Tetranychidae, Tydeidae, Stigmaeidae, Eupalopsellidae, Cunaxidae and Anystidae. In this instance specimens were collected from *Lycium cinereum* Thunb., 5 March 1986 (E.A. Ueckermann).

Amblyseius (A.) addoensis Van der Merwe, 1964.

This species is closely related to *A. (A.) citri* (Van der Merwe and Ryke) and can only be differentiated by the shorter setae Z_4 .

This important biological control agent on citrus has a wide distribution and host range in South Africa. It was collected in association with species of the Tetranychidae, Tenuipalpidae, Tuckerellidae, Anystidae, Stigmaeidae, Eupalopsellidae, Bdellidae, Cheyletidae, Tydeidae and Erythraeidae. A new host record from the MZNP was *Clematis brachiata* Thunb., Wilgerboom River, 3 March 1986 (E.A. Ueckermann).

Typhlodromus (Anthoseius) incisivus Van der Merwe, 1968.

The following combination of characters is distinctive of this species: dorsal body setae short and smooth, except for setae Z_5 which are relatively long and serrated; genu II with eight setae; ventro-anal shield slender and almost rectangular with the pre-anal pores closely spaced; spermatheca asymmetric with

the major duct short and swollen; cervix a broad tube, having the proximal half sclerotised; cervix and major duct separated by a narrow fusion.

This species was first described from *Dodonaea viscosa* Jacq. in the Mountain Zebra National Park. It was subsequently recorded from 13 different plant species at various places in the Cape and Transvaal. New host records from the MZNP are: *Chrysocoma tenuifolia* Berg., 6 March 1986 (M.K.P. Smith Meyer); *Diospyros austro-africana* De Winter var. *microphylla* (Burch.) De Winter, 5 March 1986 (M.K.P. Smith Meyer); *Felicia filifolia* (Vent.) Burt Davy subsp. *filifolia*, 5 March 1986 (E.A. Ueckermann); *Lotononis divaricata* (Eckl. & Zeh.) Benth., 4 March 1986 (E.A. Ueckermann); *Hermannia vestita* Thunb., 5 March 1986 (M.K.P. Smith Meyer); *Pentzia punctata* Harv., 6 March 1986 (E.A. Ueckermann); *Pegolettia retrofracta* (Thunb.) Kies., 6 March 1986 (M.K.P. Smith Meyer); *Tarchonanthus camphoratus* L., Rest Camp, 6 March 1986 (E.A. Ueckermann); *Walafrida saxatilis* (E. Mey) Rolfe, 6 March 1986 (M.K.P. Smith Meyer).

This species was found in association with mites of the Tetranychidae, Anystidae, Erythraeidae, Stigmaeidae and Tydeidae.

Typhlodromus (A.) paganus Van der Merwe, 1968.

The following combination of characters distinguishes this species: dorsal body setae short, with setae Z_{4-5} serrated and Z_5 knobbed; setae S_5 much shorter than S_4 ; cervix of spermatheca tubular; leg IV with three knobbed macrosetae; sternal shield with two pairs of setae and posterior margin lobed.

Van der Merwe (1968) reported this species from *Diospyros lycioides* Desf., *Populus* sp., *Prunus armeniaca* L., *Rhus erosa* Thunb. and *Melianthus comosus* Vahl in the Mountain Zebra National Park. Recent new host accessions from this park are: *Lycium oxycarpum* Dun., *Garuleum pinnatifidum* (Thunb), *Rhus lancea* L. F. and *R. pyroides* Burch., 4 March 1986 (M.K.P. Smith Meyer). This species was also collected from various plants at other localities in the Transvaal, Cape, KwaZulu and the Ciskei often in association with mites of the Tetranychidae, Cheyletidae and Anystidae.

Typhlodromus (A.) praeacutus Van der Merwe, 1968.

In this species setae Z_{4-5} are long, serrated and pointed; setae S_5 are much shorter than setae S_4 ; leg IV with one pointed seta and genu II with eight setae.

Typhlodromus (A.) praeacutus is widely distributed in South Africa and is found on many plants. Meyer (1970) recorded it from the MZNP collected on *Ficus* sp. A new host record from this park is *Melianthus* sp., 6 March 1986 (E.A. Ueckermann).

Typhlodromus (A.) lootsi Schultz, 1972.

The ventro-anal shield of this species is elongated and devoid of pre-anal pores; genu II with eight setae; atrium of spermatheca incorporated in cervix, latter short and bell-shaped.

This species was recorded from several plant species in the Cape and frequently in association with mites of the Anystidae and Tydeidae. Material

collected in the MZNP contains a new record from *Lycium cinereum* Thunb., 5 March 1986 (E.A. Ueckermann).

Typhlodromus (A.) *capparidis* Van der Merwe, 1968.

The long, serrated and pointed setae Z_{4-5} , the almost square ventro-anal shield and the spermatheca with its relatively broad major duct and bell-shaped cervix distinguish this species from related species.

This species was formerly recorded from several plants in the Cape. It was found in association with eupalopsellid and tydeid species. In the MZNP it was newly recorded from *Ballota africana* (L.) Benth., 4 March 1986 (E.A. Ueckermann).

Typhlodromus (T.) *griekwensis* Schultz, 1973.

The short, smooth dorsal body setae (except setae Z_5), the sternal shield carrying two pairs of setae, with its posterior margin lobed, genua II and III bearing eight and six setae respectively and the absence of pre-anal pores are characteristic of this species.

Typhlodromus (T.) *griekwensis* was formerly found on seven plant species in the Cape and South West Africa (Namibia). It was collected in association with species of the Tetranychidae, other Phytoseiidae and Eupalopsellidae. New hosts and distribution records from the MZNP are: *Pentzia punctata* Harv., 6 March 1986 (E.A. Ueckermann); *Solanum tomentosum* L., 6 March 1986 (M.K.P. Smith Meyer).

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