

South African Acari. V. Some mites of the Kalahari Gemsbok National Park

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A check list of phytophagous and predaceous mites collected from the Kalahari Gemsbok National Park is given. Data on the habitat and distribution of the 12 known species are presented. The following 10 species are described for the first time: *Typhlodromus eremicus*, *Bryobia oryctostodia*, *B. birivularis*, *B. deserticola*, *Aplonobia plinthis*, *Neopetrobia burchelliae*, *N. convolvuli*, *N. lerichei*, *Aegyptobia odontipilis* and *Abrolophus spiculosus*.

Key words: Kalahari Gemsbok National Park, mites, Acari.

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Introduction

During February 1987 the first official survey of phytophagous and predaceous mites was conducted in the Kalahari Gemsbok National Park: 22 mite species were taken, 10 of which are new. This represents a considerable increase on the four previously known species. A check list is given of the mite species reported here.

Materials and Methods

Mites were collected by beating plant material over a white tray. The mites were then transferred with a fine brush to a vial containing 70-75 % alcohol. Specimens were mounted in Heinze's modified PVA medium. The type-material and other identified specimens are deposited in the National Collection of Arachnida, Plant Protection Research Institute, Pretoria.

Check List of the Mites of the Kalahari Gemsbok National Park

- Order Mesostigmata
Family Phytoseiidae
1. *Typhlodromus eremicus* Ueckermann, *spec. nov.*
- Order Prostigmata
Family Eupalopsellidae
2. *Eupalopsellus sellnicki* Meyer & Ueckermann, 1984.
- Family Caligonellidae
3. *Molothrognathus citrivallis* Meyer & Ueckermann, 1989.
 4. *M. phytocolus* Meyer & Ueckermann, 1989.
- Family Tetranychidae
Subfamily Bryobiinae
5. *Bryobia orycustodia* Meyer, *spec. nov.*
 6. *B. birivularis* Meyer, *spec. nov.*
 7. *B. deserticola* Meyer, *spec. nov.*
 8. *B. karoensis* Meyer, 1974.
 9. *B. geigeriae* Meyer, 1974.
 10. *Aplonobia plinthei* Meyer, *spec. nov.*
 11. *Neopetrobia burchelliae* Meyer, *spec. nov.*
 12. *N. convolvuli* Meyer, *spec. nov.*
 13. *N. lerichei* Meyer, *spec. nov.*
 14. *N. galeniae* (Meyer), 1974.
 15. *Petrobia latens* (Müller), 1776.
- Subfamily Tetranychinae
16. *Eutetranychus namibianus* Meyer, 1987.
- Family Tenuipalpidae
17. *Aegyptobia multistriatum* Meyer, 1979.
 18. *A. kalahariensis* Meyer, 1979.
 19. *A. neobaptus* Meyer, 1979
 20. *A. odontopilis* Meyer, *spec. nov.*
- Family Erythraeidae
Subfamily Leptinae
21. *Leptus intermedius* Meyer & Ryke, 1958.
- Subfamily Callidosomatinae
22. *Abrolophus spiculosus* Ueckermann, *spec. nov.*

Species Accounts

The notations of the dorsal setae used in the species descriptions for the Tetranychidae, are after Lindquist (1985), whereas the setal notation for the Phytoseiidae follows Rowell, Chant & Hansell (1978). Unless otherwise stated, the following are all new records for the Kalahari Gemsbok National Park.

Order Mesostigmata Family Phytoseiidae

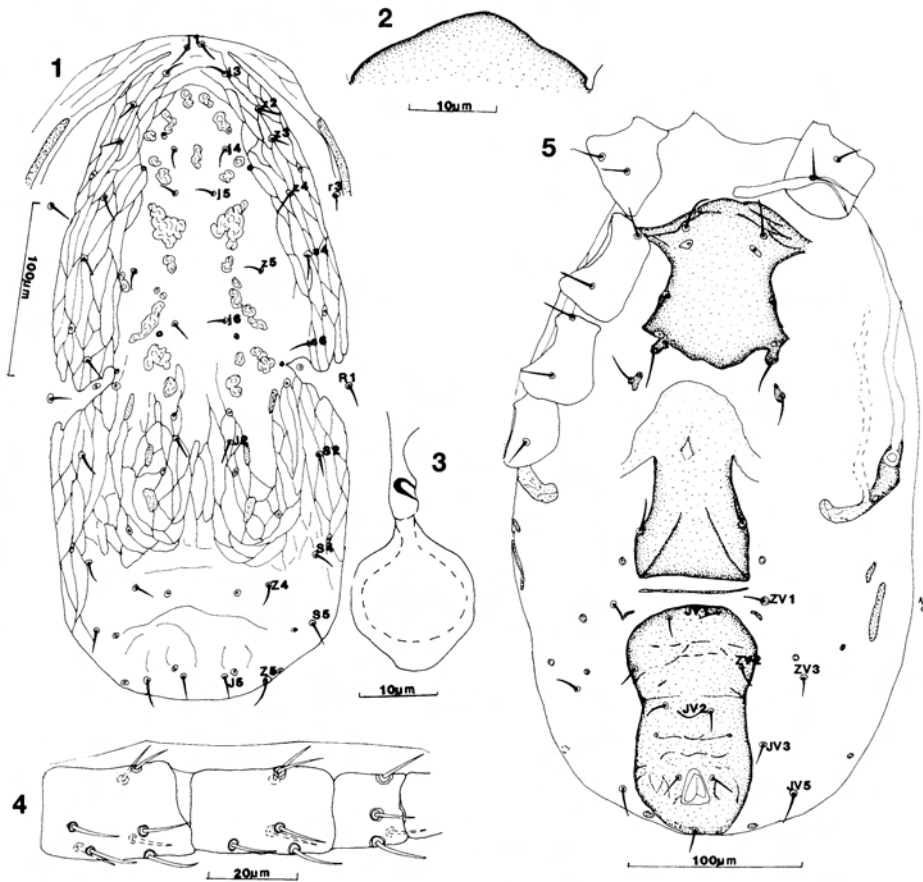
Only one representative of this predaceous mite family was found and it appears to be a new species.

1. *Typhlodromus eremicus* Ueckermann *spec. nov.* Figs. 1-5

Typhlodromus eremicus belongs to a group of species with 3 pairs of pre-anal setae. This species resembles *T. suecicus* (Sellnick, 1955), but differs from the

latter in that the dorsal body setae are half or less than half the length of those of *T. suecicus*. *T. eremicus* also resembles *T. ternatus* Ehara, 1972, but can be distinguished from the latter by the shape of the sternal shield and spermatheca, the absence of macrosetae and by the presence of eight setae on genu IV.

Female. Dimensions of holotype: length of dorsal shield 359 μm ; width 154 μm ; leg I 246 μm long; leg IV 252 μm long; length of sternal shield 95 μm ; width 82 μm ; width of genital shield 63 μm ; length of ventro-anal shield 120 μm ; width 73 μm . The dorsal body setae vary between 9 — 16 μm in length, with setae Z5 and JV5 the longest.



Figs. 1-5. *Typhlodromus eremicus* Ueckermann *spec. nov.* Female.

Fig. 1. Dorsal view.

Fig. 4. Basitarsus, tibia and genu IV.

Fig. 2. Anterior margin of tectum.

Fig. 5. Ventral view.

Fig. 3. Spermatheca.

Dorsum (Fig.1). Dorsal shield elongate, slender and ornamented; bearing 18 pairs of short, simple setae and 14 pairs of pores; lateral margins with deep incisions medially; setae r3, R1 and a pair of pores lateral on integument; peritremes reach to level of setae z2.

Venter (Fig. 5). Sternal shield with three pairs of setae and two pairs of pores; posterior margin almost convex; fourth pair of sternal setae and third pair of sternal pores on small metasternal shields; peritremal and endopodal shields indistinctly outlined; ventro-anal shield longer than broad, slightly indented laterally, bearing three pairs of pre-anal setae, a pair of small pre-anal pores, posterolaterally to setae *JV2* and three circum-anal setae; para-anal setae almost in line with anterior margin of anal opening; opisthogastric cuticle with seven pairs of small platelets (one pair associated with setae *ZV1*), a long slender transverse platelet between genital and ventro-anal shields, two pairs of slender metapodal shields and four pairs of setae; one member of setal pair *JV4* absent.

Gnathosoma. Position of chelicerae makes morphological description impossible; anterior margin of tectum convex (Fig.2).

Spermatheca (Fig. 3). Atrium bulbous; cervix suddenly flares towards balloon-shaped vesicle.

Legs. Leg chaetotaxy normal, except for trochanter I with six setae and genu II and IV each with eight setae (Fig. 4); macrosetae absent.

Male. Unknown.

Type data. Holotype female from an unidentified herb, near Eland, Kalahari Gemsbok National Park (Cape Province), 6 February 1987 (M.K.P. Smith Meyer).

Order Prostigmata Family Eupalopsellidae

Members of the Eupalopsellidae are predaceous mites that occur on a wide range of plants in association with phytophagous mites and insects. To date only one representative of this family has been found in the Kalahari Gemsbok National Park.

2. *Eupalopsellus sellnicki* Meyer & Ueckermann, 1984.

This species has been collected from a wide range of plants in South Africa. On *Citrus* sp. at Messina Research Station (Transvaal) it was found in association with red scale (Meyer & Ueckermann 1984). The following is a new record of *E. sellnicki* from the Kalahari Gemsbok National Park: *Acacia reficiens* Wawra, Mata-Mata, 7 February 1987 (M.K.P. Smith Meyer).

Family Caligonellidae

This family of predatory mites is represented by two species, both are new records.

3. *Molothrognathus citrivallis* Meyer & Ueckermann, 1989.

This species was described by Meyer & Ueckermann (1989) from *Citrus* sp., at Citrusdal, where it was found amongst eggs of *Aplonobia citri* Meyer (Tetranychidae). At Rooiputs in the Kalahari Gemsbok National Park, this species together with a new tenuipalpid species *Aegyptobia odontipilis* were collected from *Aptosimum marlothii* (Engl.) on 9 February 1987 (M.K.P. Smith Meyer).

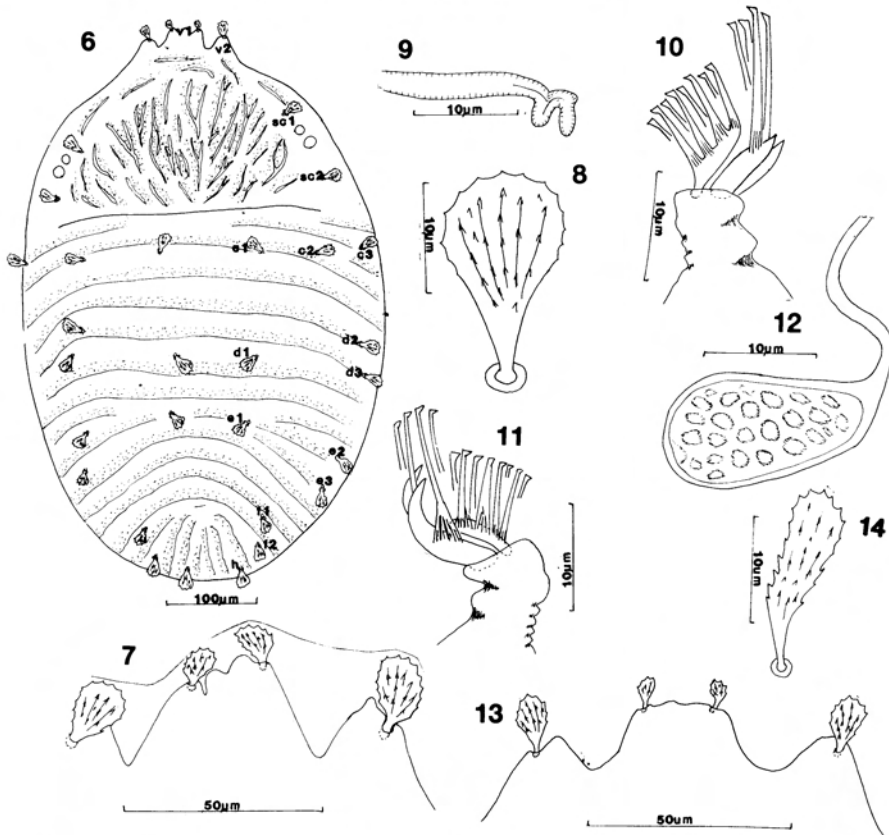
4. *Molothrognathus phytocolus* Meyer & Ueckermann, 1989.

In the Kalahari Gemsbok National Park, *M. phytocolus* was collected from *Acacia erioloba* E.Mey., Nossob, 4 February 1987 (D.P. Keetch); *Aptosimum marlothii* (Engl.), Rooiputs, 9 February 1987 (M.K.P. Smith Meyer); *A. albomarginatus* Marloth & Engl. Rooibrak, 11 February 1987 (E.A. Ueckermann).

Family Tetranychidae
Subfamily Bryobiinae

5. *Bryobia orycustodia* Meyer, *spec. nov.* Figs. 6-14

As in *B. kakamaensis* Meyer, 1987, true claws of tarsus I pad-like, anteromedian prodorsal lobes fused to form a single lobe and solenidia on tarsi III and IV not associated with tactile setae. It can be distinguished from *B. kakamaensis* in that leg I is shorter than the body and the leg chaetotaxy and shape of the spermatheca are distinctive.



Figs. 6-14. *Bryobia orycustodia* Meyer *spec. nov.*

Fig. 6. Dorsal view of female.

Fig. 7. Prodorsal lobes of female.

Fig. 8. Dorsal body seta of female.

Fig. 9. Peritreme of female.

Fig. 10. Tarsal appendages of leg I of female.

Fig. 11. Tarsal appendages of legs II-IV of female.

Fig. 12. Spermatheca.

Fig. 13. Prodorsal lobes of male.

Fig. 14. Dorsal body seta of male.

Female. Dimensions of holotype (measurements in parentheses are variations in the paratype): length of body (including gnathosoma) 667 μm (694); length (excluding gnathosoma) 600 μm (620); breadth 467 μm (473); length of leg I 427 μm (433).

Dorsum (Fig. 6). Outer anterior prodorsal lobes (Fig. 7) triangular; single anteromedian lobe broad with two setae ($v1$), about half the length of second pair ($v2$).

Body setae (Fig. 8) spatulate, serrate and about 22 μm long and 13 μm broad; dorsal integument striate and granulate.

Gnathosoma: Stylophore rounded anteriorly; peritreme ends simply (Fig. 9).

Legs: Setae and solenidia (in parentheses) on legs I-IV as follows: coxae 2-1-1-1; trochanters 1-1-1-1; femora 10 or 11-6-5-5; genua 8-5-6-4 or 5; tibiae 13(1)-9-9-9; tarsi 19(5) + 2 dupl.-15(1)+1 dupl.-14(1)-14(1). Solenidia on tarsi III and IV not associated with tactile setae and as long as other leg setae. True claws of tarsus I (Fig. 10), pad-like but claws of other legs normal; short empodial pad of leg I bears 4 pairs of tenent hairs; empodial pads of legs II-IV carry 2 rows of ventrally directed tenent hairs (Fig. 11).

Spermatheca. Sacculus more or less pyriform (Fig. 12).

Male. Dimensions: length of body (including gnathosoma) 533 μm ; length (excluding gnathosoma) 433 μm ; breadth 280 μm ; length of leg I 400 μm .

Anterior lobes of prodorsum as depicted in Fig. 13; dorsal body setae (Fig. 14) subspatulate, serrate, about 19 μm long and about 6 μm broad; inclusive counts of leg setae (solenidia indicated parenthetically) as follows: femora 11-9-5-4; genua 7-5-6-4; tibiae 13(1)-9-9-9; tarsi 18(14) + 2 dupl.-15(1) + 1 dupl.-14(1) - 14(1).

Type data. Holotype female and one paratype male from *Monechma genistifolium* (Engl.) C.B. CL. subsp. *australe* (P.G. Mey) J. Munday Ined., Nossob, Kalahari Gemsbok National Park (Cape Province), 4 February 1987 (M.K.P. Smith Meyer); one paratype female from *Boscia albitrunca* (Burch.) Gilg & Ben., Kannaguass, Kalahari Gemsbok National Park (Cape Province), 11 February 1987 (E.A. Ueckermann).

6. *Bryobia birivularis* Meyer, *spec. nov.* Figs. 15-23

This species traces to *B. coatesi* Meyer, 1974, in the key by Meyer (1987). However, it can be differentiated from *B. coatesi* by the shape of the spermatheca and the chaetotaxy of female femur I, genu I and tibia I (8 or 9, 6 and 11(1) setae respectively for *B. rivularis*, 7, 7 or 8 and 9(1) setae respectively for *B. coatesi*).

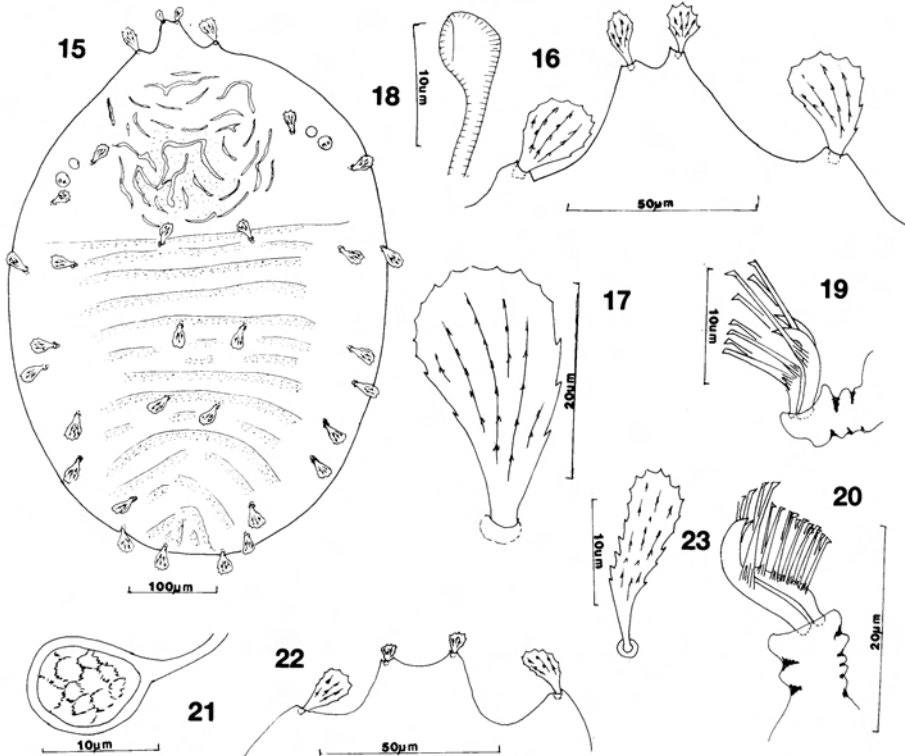
Female. Dimensions of holotype: length of body (including gnathosoma) 660 μm (647-660); length (excluding gnathosoma) 560 μm (520- 553); breadth 400 μm (360-387); length of leg I 530 μm .

Dorsum (Fig. 15). Outer anterior prodorsal lobes (Fig. 16) weakly devel-

oped; anteromedian lobes fused and incised; first pair of prodorsal setae (v1) about a third as long as second pair (v2).

Dorsal body setae (Fig. 17) spatulate and serrate, being about 30 μm long and 15 μm wide; integument granulate; prodorsum with longitudinal to irregular striae; opisthosoma with coarse, mostly transverse striae.

Gnathosoma. Stylophore indented mediolaterally; palpal claw bidentate distally; peritreme ends in a bulb (Fig. 18).



Figs. 15-23. *Bryobia birivularis* Meyer spec. nov.

Fig. 15. Dorsal view of female.

Fig. 16. Prodorsal lobes of female.

Fig. 17. Dorsal body seta of female.

Fig. 18. Peritreme of female.

Fig. 19. Tarsal appendage of leg I of female.

Fig. 20. Tarsal appendages of legs II-IV.

Fig. 21. Spermatheca.

Fig. 22. Prodorsal lobes of male.

Fig. 23. Dorsal body seta of male.

Legs. Leg setae and solenidia (in parentheses) as follows: coxae 2-1-1-1; trochanters 1-1-1-1; femora 8 or 9-6 or 7-4-3; genua 6-5-5-5; tibiae 11(1)-8-8-7; tarsi 17(4) + 2 dupl.-15(2) + 1 dupl.-14(1)-14(1); true claws of legs I-IV unciniate and each bearing a pair of tenent hairs; empodial pad of leg I short with 2 pairs of tenent hairs (Fig. 19); empodial pads of legs II-IV bear two rows of ventrally directed tenent hairs (Fig. 20); solenidia on tarsi III and IV not associated with tactile setae and about as long as other leg setae.

Spermatheca. Sacculus rounded (Fig. 21).

Male. Dimensions: length of body (including gnathosoma) 527 μm ; length (excluding gnathosoma) 430 μm ; breadth 267 μm ; length of leg I 400 μm .

Anterior lobes (Fig. 22) on prodorsum shorter than those of female: opisthosoma divided by a suture; despite these differences the dorsum generally resembles that of the female; dorsal body setae (Fig. 23) subspatulate (about 20 μm long and 9 μm broad); chaetotaxy of legs as follows: femora 8-6-4-3; genua 6-5-5-5; tibiae 11(1)-8-7-7; tarsi 18(16) + 2 dupl.-15(2) + 1 dupl.-14(1)-14(1); distal portion of aedeagus curves abruptly dorsad; curved portion needle-like and shorter than shaft.

Type data. Holotype female and one paratype male from *Monechma incanum* (Nees) C.B. Cl., near Twee Rivieren (Mata-Mata Road), Kalahari Gemsbok National Park (Cape Province), 9 February 1987 (E.A. Uecker-mann).

7. *Bryobia deserticola* Meyer spec. nov. (Figs. 24-33)

The shape of the anterior prodorsal lobes and the structure of the claw complex of leg I resemble those of *B. geyeri* Meyer, 1974. However, *B. deserticola* can be separated from the latter species by the structure of the empodial pads of legs II-IV. These are about half the length of the claws, bearing four tenent hairs which may coalesce.

Female. Dimensions of holotype (measurements in parentheses indicate variations in paratypes): length of body (including gnathosoma) 700 μm (667-707); length (excluding gnathosoma) 600 μm (567-627); breadth 447 μm (440-467); length of leg I 420 μm (390-433).

Dorsum (Fig. 24). Outer anterior prodorsal lobes (Fig. 25) broadly triangular; single anteromedian lobe relatively broad with two setae (V_1) about half the length of second pair (v_2).

Body setae spatulate, serrate, about 25 μm long and 13 μm broad; integument granulate; prodorsum with irregular to longitudinal striae; opisthosoma with coarse, mostly transverse striae.

Gnathosoma. Anteriorly, stylophore slightly indented; peritreme terminates in a small anastomosis (Fig. 27).

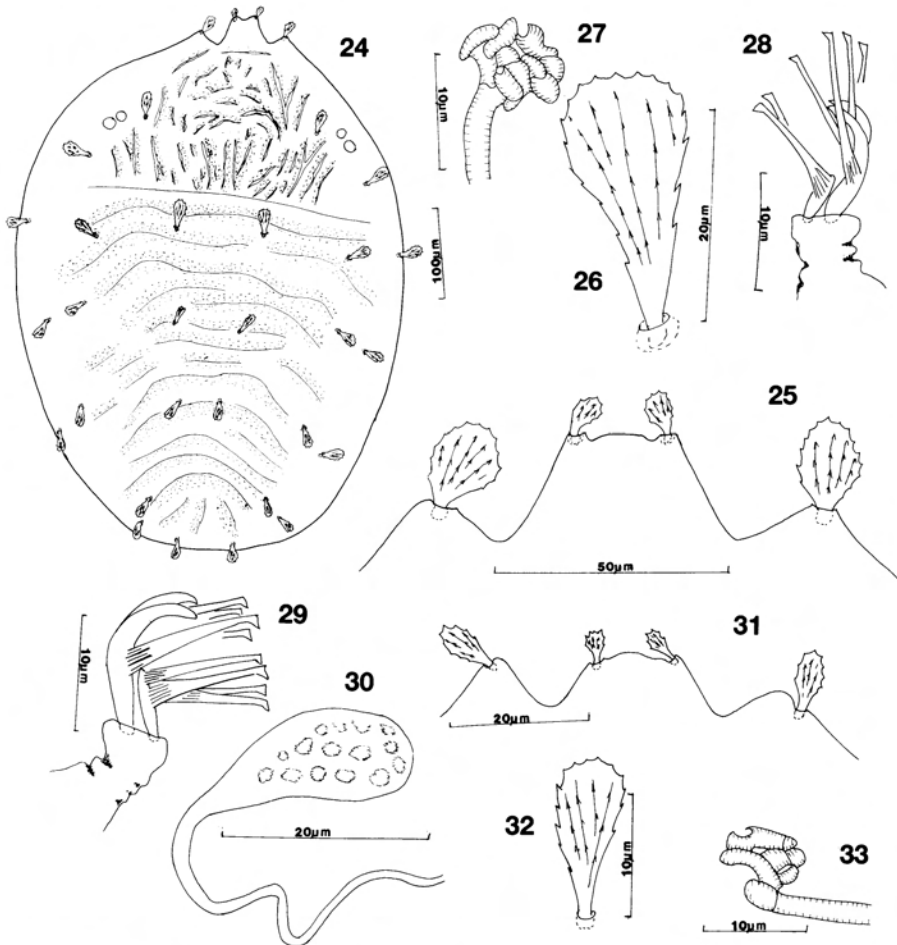
Legs. Counts of setae and solenidia (indicated parenthetically) on legs I-IV as follows: coxae 2-1-1-1; trochanters 1-1-1-1; femora 8 to 10-6-5-4 or 5; genua 6 or 7-5 to 7-5 or 6-6; tibiae 13(1)-9-9-9; tarsi 19 (5) + 2 dupl.-15(2) + 1 dupl.-14(1)-14(1). Solenidia of tarsi III and IV not associated with tactile setae and longer than other leg setae; true claws uncinata, each bearing a pair of tenent hairs; empodium I (Fig. 28) short, pad-like, about a third the length of the claws and with one pair of tenent hairs; empodia (Fig. 29) of other legs pad-like, about half the length of the claws and each with four tenent hairs which may be coalescent.

Spermatheca. Sacculus nearly pear-shaped (Fig. 30).

Male. Dimensions: length of body (including gnathosoma) 567 μm ; length (excluding gnathosoma) 447 μm ; breadth 300 μm ; length of leg I 420 μm .

Anterior prodorsal lobes (Fig. 31) shorter than those of female; dorsal body setae (Fig.32) subspatulate, serrate, about 22 μm long and 6 μm broad; peritremal anastomoses (Fig. 33) smaller than that of female; setal formulae for legs (solenidia in parentheses): femora 11-8-5-5; genua 8-6-6-6; tibiae 13(1)-9-9-9; tarsi 18(13) + 2 dupl.-15(2) + 1 dupl.-14(1)-14(1); aedeagus curves gradually dorsad to an acicular tip, curved portion shorter than shaft.

Type data. Holotype female, six paratype females and two paratype males from *Monechma genistifolium* (Engl.) C.B. Cl. subsp. *australe* (P.G. Mey) J. Munday Ined., Rooiputs, Kalahari Gemsbok National Park (Cape Province), 3 February 1987 (M.K.P Smith Meyer).



Figs. 24-33. *Bryobia deserticola* Meyer *spec. nov.*

Fig. 24. Dorsal view of female.

Fig. 25. Prodorsal lobes of female.

Fig. 26. Dorsal body seta of female.

Fig. 27. Peritreme of female.

Fig. 28. Tarsal appendage of leg I.

Fig. 29. Tarsal appendages of legs II-IV.

Fig. 30. Spermatheca.

Fig. 31. Prodorsal lobes of male.

Fig. 32. Dorsal body seta of male.

Fig. 33. Peritreme of male.

8. *Bryobia karoensis* Meyer, 1974.

Bryobia karoensis Meyer, 1974: 47-50; Meyer, 1987: 18-20.

This species has a wide distribution in the drier regions of South Africa and was recorded from 13 plant species. Meyer (1987) reported *B. karoensis* from the Kalahari Gemsbok National Park.

9. *Bryobia geigeriae* Meyer, 1974.

Bryobia geigeriae Meyer, 1974: 46-47; Meyer, 1987: 18.

Bryobia geigeriae was first described from *Senecio glutinarius* DC., *Geigeria aspera* Harv., *G. ornativa* O. Hoffm. and *G. rigida* O. Hoffm. It was collected in the Kalahari Gemsbok National Park on *G. pectidea* (DC.) Harv., between Rooiputs and Kijkij, 9 February 1987 (E.A. Ueckermann).

10. *Aplonobia plinthi* Meyer, *spec. nov.* Figs. 34-37

This species has subspatulate dorsal body setae like *A. punctata* Meyer, 1974. However, it can be separated from *A. punctata* by the relatively shorter setae on the posterior part of the opisthosoma, the shape of the peritremal anastomosis and opisthosomal setae f_{1-2} which are contiguous.

Female. Dimensions of holotype (measurements in parentheses are variations in paratypes): length of body (including gnathosoma) 600 μ m (547-640); length (excluding gnathosoma) 520 μ m (427-507); breadth 367 μ m (280-400); leg I 360 μ m (327-353) long.

Dorsum (Fig. 34). Dorsum with three pairs of prodorsal setae and 10 pairs of opisthosomal setae of unequal length; humeral setae (c_3) situated marginally and located on small tubercles; serrate dorsal setae (Fig. 35) with expanded tips and set on tubercles; setae f_{1-2} contiguous; opisthosomal setae shorter than intervals between bases of consecutive setae; integument punctate; opisthosoma bears transverse striae.

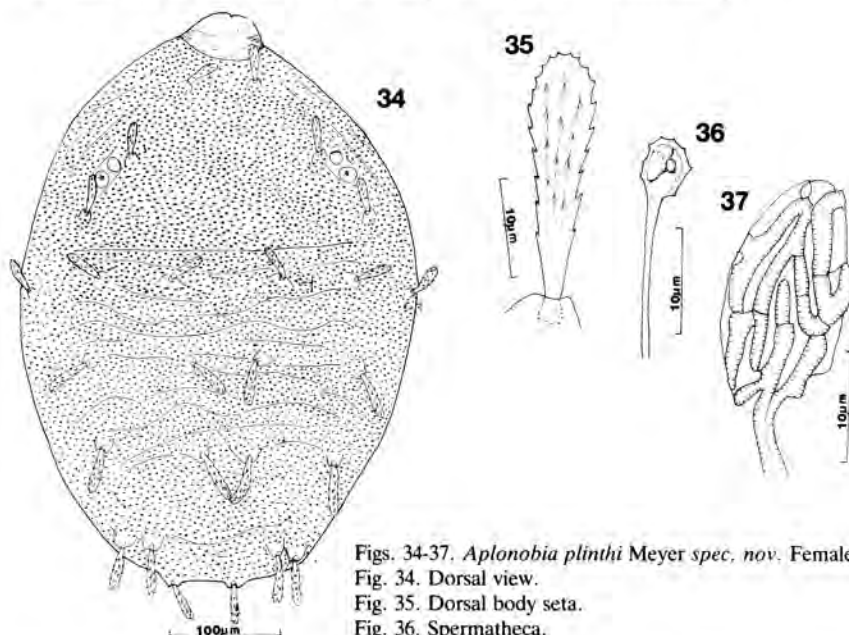
Spermatheca. The slender duct gradually widens distally and dilates in a rounded bulb (Fig. 36).

Gnathosoma. Distally, peritreme dilates into a large oval, branched enlargement (Fig. 37); stylophore slightly incised anteriorly; palptarsus bears a short solenidium, three eupathidia and three setae.

Legs. Distribution of setae and solenidia (in parentheses) on legs is: coxae 2-2-1-1; trochanters 1-1-1-1; femora 7-5-3-3 or 4; genua 6-6-4-4; tibiae 8 or 9(1)-7 or 8-8-7 or 8; tarsi 15 + 2 dupl.-13 + 1 dupl.-11 + 1 dupl.-10 + 1 dupl. Tarsus I with nine setae proximal to duplex setae and tarsus II with five setae proximal to duplex setae; empodial pads slightly longer than claws and each with two ventral rows of tenent hairs.

Male. Dimensions: length (including gnathosoma) 467 μ m; length (excluding gnathosoma) 347 μ m; breadth 233 μ m; length of leg I 300 μ m. Male resembles female in the organisation of dorsum and gnathosoma. Inclusive counts of setae and solenidia (in parentheses) on leg segments as follows: femora 7-5-3 or 4-4; genua 6-6-4 or 5-3 or 4; tibiae 6(2) + 2 dupl.-8-8-7; tarsi 12(5) + 3 dupl.-13 + 1 dupl.-10 + 1 dupl.-10 + 1 dupl.

Type data. Holotype female, 7 paratype females and 2 paratype males from *Plinthus sericeus* Pax, dune road to Eland, Kalahari Gemsbok National Park (Cape Province), 6 February 1987 (E.A. Ueckermann).



Figs. 34-37. *Aplonobia plinthi* Meyer spec. nov. Female.
 Fig. 34. Dorsal view.
 Fig. 35. Dorsal body seta.
 Fig. 36. Spermatheca.
 Fig. 37. Peritreme.

11. *Neopetrobia burchelliae* Meyer, spec. nov. Figs. 38-47

Neopetrobia burchelliae is distinguished by the female opisthosomal setae f_2 which are about twice as long as setae f_1 ; male setae d_2 and e_2 twice as long as setae d_1 and e_1 and setae f_1 about three quarters the length of f_2 .

Female. Dimensions of holotype (measurements indicated parenthetically are variations in paratypes): length of body (including gnathosoma) 600 μm (520-533); length (excluding gnathosoma) 480 μm (433-446); breadth 367 μm (334-347); leg I 320 μm (300-313) long.

Dorsum (Fig.38). First pair of prodorsal setae v_2 (Fig. 39) and opisthosomal setae h_1 broadly lanceolate, serrate and about 36 μm long; setae sc_{1-2} , c_{1-2} , d_2 and e_2 about 22 μm long whereas setae c_3 and d_2 are about 19 μm long and setae d_1 , e_1 and f_1 about 16 μm ; all these setae are more or less spatulate (Fig. 40), setae f_2 lanceolate and about 35 μm long; prodorsum punctate medially, with several longitudinal, widely spaced striae laterally.

Spermatheca. Duct terminates distally in a rounded sacculus (Fig.41).

Gnathosoma. Stylophore incised anteriorly; peritreme terminates in a more or less oval anastomosis (Fig. 42).

Legs. Setal formulae (solenidia in parentheses) for leg segments: coxae 2-2-1-1; trochanters 1-1-1-1; femora 6-5 or 6-3-4; genua 4 or 6-4 or 5-4-4 ;

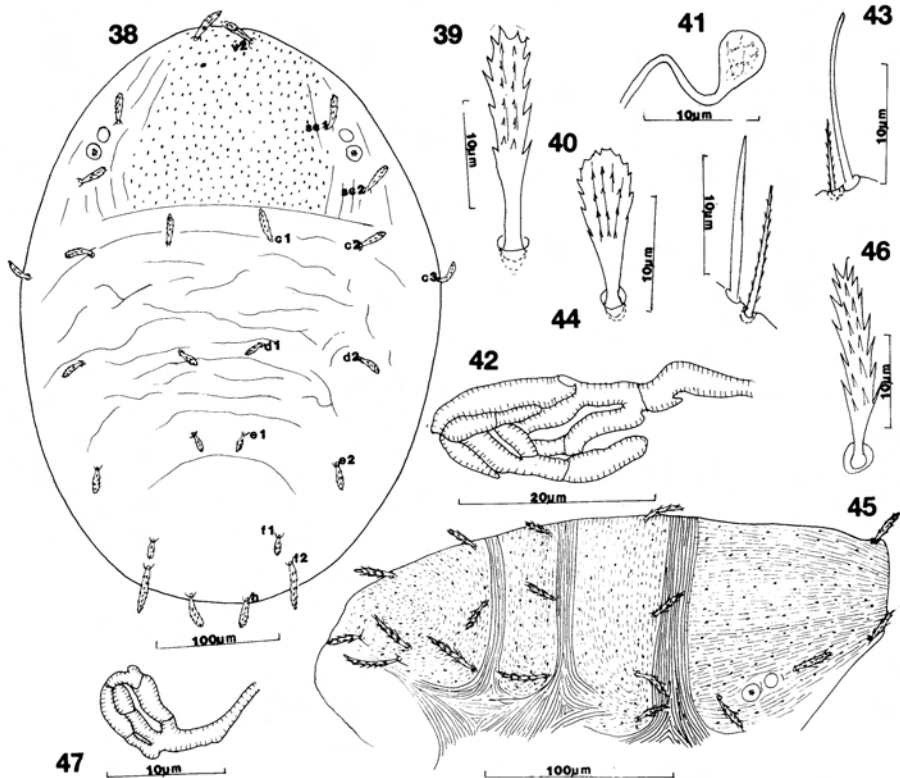
tibiae 9(1)-6 or 7-7-5 or 6: tarsi 16 + 2 dupl.-13 + 1 dupl.-9 or 10 + 1 dupl.-9 or 10 + 1 dupl.; tactile member of duplex setae on tarsus II nearly half as long as solenidion (Fig.43); tactile member of duplex setae of tarsi III and IV about three quarters the length of solenidion (Fig. 44).

Male. Dorsum (Fig. 45). Body setae lanceolate and serrate (Fig. 46); opisthosomal setae d_2 and e_2 about twice as long as setae d_1 and e_1 ; setae f_1 about three quarters the length of f_2 ; prodorsum bears longitudinal striae; opisthosoma divided by transverse striae into three parts on which may occur transverse or longitudinal striae.

Gnathosoma. Peritreme anastomosis distally and forms an oval chamber (Fig. 47).

Aedeagus. Distally, the shaft of the aedeagus terminates in short stylets.

Legs. Setal formulae for leg segments as follows: femora 5 or 6-5-4-4; genua 6-5 or 6-4-4; tibiae 9(1) + 2 dupl.-7 or 8-8-5 to 7; tarsi 13(4) + 4 dupl.-14 + 1 dupl.-10 + 1 dupl.-10 + 1 dupl.



Figs. 38-47. *Neopetrobia burchelliae* Meyer *spec. nov.*

Fig. 38. Dorsal view of female.

Fig. 39. Dorsal body seta v_2 of female.

Fig. 40. Dorsal body seta d_1 of female.

Fig. 41. Spermatheca.

Fig. 42. Peritreme of female.

Fig. 43. Duplex setae on tarsus II of female.

Fig. 44. Duplex setae on tarsi III-IV of female.

Fig. 45. Lateral view of male.

Fig. 46. Dorsal body seta of male.

Fig. 47. Peritreme of male.

Type data. Holotype female, three paratype females and two paratype males from *Aizoon burchellii* N.E. Br., Batulama, Kalahari Gemsbok National Park, Cape Province, 11 February 1987 (E.A. Ueckermann).

12. *Neopetrobia convolvuli* Meyer, *spec. nov.* Figs. 48-56

This species may be distinguished by the female's subspatulate dorsal body setae, the shape of the peritremal anastomoses and the presence of two or three duplex setae on male tibia I.

Female. Dimensions of holotype: length of body (including gnathosoma) 600µm; length (excluding gnathosoma) 547µm; breadth 427µm; length of leg I 320µm.

Dorsum (Fig. 48). Body setae subspatulate and serrate (Fig. 49); length as follows: setae v_2 about 28µm; sc_{1-2} , d_1 , e_1 and f_1 22µm; c_1 and h_1 25µm; f_2 27µm; integument punctulate; opisthosoma covered with transverse to irregular, widely spaced striae.

Spermatheca. Duct distally ends in a pear-shaped sacculus (Fig. 50).

Gnathosoma. Stylophore slightly indented anteriorly; peritremal enlargement (Fig. 51) more or less oval.

Legs. Counts of setae and solenidia (in parentheses) on legs I-IV as follows: coxae 2-2-1-1; trochanters 1-1-1-1; femora 6-6-4-4; genua 6-5-5-4; tibiae 9(1)-7-6-6 or 7; tarsi 12 + 2 dupl.-12 + 1 dupl.-8 or 9 + 1 dupl.-8 or 9 + 1 dupl.; tactile member of duplex setae on tarsus II nearly half as long as solenidion (Fig. 52); members of duplex setae on tarsi III and IV subequal in length, solenidia being the longest (Fig. 53).

Male. Dorsum (Fig. 54). Body setae narrowly lanceolate and serrate (Fig. 55); dorsal body surface punctulate; opisthosoma with two transverse divisions.

Gnathosoma. Stylophore incised anteriorly; peritreme ends in a small oval chamber (Fig. 56).

Aedeagus. Shaft of aedeagus narrows distally to form acicular stylets.

Legs. Chaetotaxy of legs: femora 9-6-3 or 4-4; genua 6-5-5-4; tibiae 5(2 or 3) + 2 or 3 dupl.-8 or 9-8-7; tarsi 11 (4) + 4 dupl.-11 + 1 dupl.-9 + 1 dupl.-9 + 1.

Type data. Holotype female and one paratype male from *Convolvulus sagittatus* Thunb. var. *ulosepalus* (Hallierf.), Rooiputs, Kalahari Gemsbok National Park (Cape Province), 3 February 1987 (M.K.P. Smith Meyer).

13. *Neopetrobia lerichei* Meyer, *spec. nov.* Figs. 57-66

This species resembles *N. burchelliae spec. nov.* but it differs in that the dorsal body setae on the posterior part of the female and male opisthosoma are subequal.

Female. Dimensions of holotype (measurements in parentheses are variations in paratypes): length of body (including gnathosoma) 533µm (547-567); length (excluding gnathosoma) 440µm (447-500); breadth 327µm (340-400).

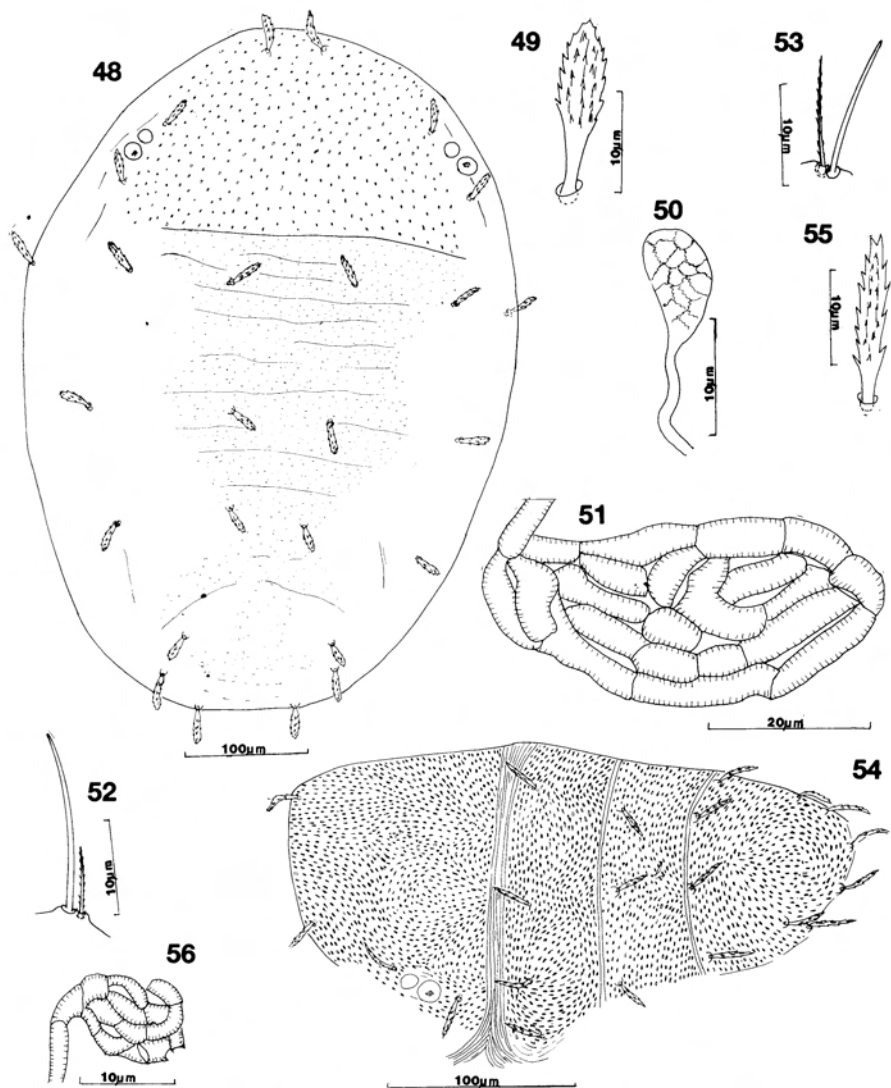


Fig. 48-56. *Neopetrobia convolvuli* Meyer spec. nov.

Fig. 48. Dorsal view of female.

Fig. 49. Dorsal body seta of female.

Fig. 50. Spermatheca.

Fig. 51. Peritreme of female.

Fig. 52. Duplex setae of tarsus II of female.

Fig. 53. Duplex setae on tarsi III-IV.

Fig. 54. Lateral view of male.

Fig. 55. Dorsal body seta of male.

Fig. 56. Peritreme of male.

Dorsum (Fig. 57). First (v_2) pair of prodorsal setae broadly lanceolate 28 μ m long; rest of body setae (Fig. 58) more subspatulate and with the following measurements: sc_{1-2} , and d_1 22 μ m; c_1 and h_1 25 μ m; f_2 27 μ m; prodorsum punctulate medially and opisthosoma with widely spaced transverse to irregular striae.

Spermatheca. Ends distally in a suboval sacculus (Fig. 59).

Gnathosoma. Stylophore slightly incised anteriorly; peritreme ends in a relatively small anastomosing chamber (Fig. 60).

Legs. Numbers of setae and solenidia (in parentheses) on podomeres of legs I-IV: coxae 2-2-1-1; trochanters 1-1-1-1; femora 6 or 7-6-3-4; genua 6-5-4-4; tibiae 9(1)-8-8-7; tarsi 16 + 2 dupl.-13 + 1 dupl.-11 + 1 dupl.-11 + 1 dupl. ; tactile members of duplex setae on tarsi II nearly half as long as solenidia (Fig. 61); tactile members of duplex setae on tarsi III about three quarters the length of solenidia (Fig. 62); tactile setae of duplex setae on tarsi IV about equal in length to solenidia; empodial pads nearly as long as true claws, with two rows of ventrally directed tenent hairs.

Male. Dorsum (Fig. 63). Body setae (Fig. 64) narrowly lanceolate, serrate and mostly shorter than intervals between consecutive setae; integument striated; opisthosoma divided by transverse striae into three parts.

Gnathosoma. Stylophore rounded anteriorly; peritreme anastomosis distally and forms a more or less rounded chamber (Fig. 65).

Aedeagus. Shaft of aedeagus straight and ends in short stylets.

Legs. Counts of setae and solenidia (in parentheses) on legs I-IV: femora 8-6-4-4; genua 6-5-4-4; tibiae 6(1) + 2 or 3 dupl.-8-8-7; tarsi 13(4) + 4 dupl.-14 + 1 dupl.-11 + 1 dupl.-11 + 1 dupl.; tactile member of duplex setae on tarsus III about two thirds the length of solenidium; tactile member of duplex setae on tarsus IV about three quarters the length of solenidium.

Nymph. Prodorsal setae v_2 and opisthosomal setae e_1 , f_{1-2} and h_1 lanceolate; remaining dorsal body setae tend to be subspatulate (Fig. 66).

Type data. Holotype female, four paratype females and one paratype nymph from *Plinthus cryptocarpus* Fenzl, Rooiputs, Kalahari Gemsbok National Park (Cape Province), 9 February 1987 (E.A. Ueckermann); one paratype female from *Rhigozum trichotomum* Burch., Rooiputs, Kalahari Gemsbok National Park (Cape Province), 9 February 1987 (L.C. Jordaan); three paratype females, three paratype males and two paratype nymphs from *Plinthus sericeus* Pax, Dikbaardskolk, Kalahari Gemsbok National Park (Cape Province), 5 February 1987 (M.K.P. Smith Meyer).

This species is named for the le Riche family who played a major role in the founding of the Kalahari Gemsbok National Park.

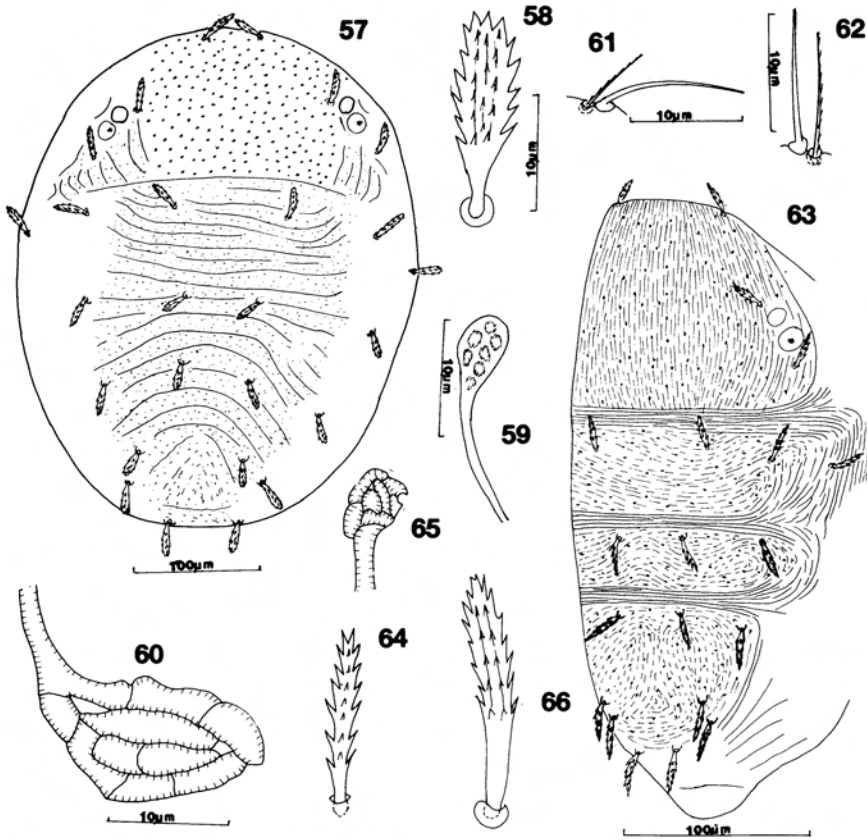
14. *Neopetrobia galeniae* (Meyer, 1974).

Langella galeniae Meyer, 1974: 87.

Neopetrobia galeniae (Meyer), 1987: 58-60.

This species is known from *Galenia procumbens* L.F., *G. namaensis* Schinz, *G. sarcophylla* Fenzl, *G. africanus* L., *Rhus pyroides* Burch., *Pentzia globosa* Less. and *Aptosimum spinescens* (Thumb) Weber in the Cape and South West Africa (Namibia).

The following new records are from the Kalahari Gemsbok National Park: *Galenia africana* L. var. *africana*, Kasperdraai and Rooiputs, 3 and 5 February 1987 (E.A. Ueckermann); *Acacia erioloba* E. Mey., Nossob, 5 February 1987 (M.K.P. Smith Meyer).



Figs. 57-66. *Neopetrobia lerichei* Meyer spec. nov.

Fig. 57. Dorsal view of female.

Fig. 58. Dorsal body seta of female.

Fig. 59. Spermatheca.

Fig. 60. Peritreme of female.

Fig. 61. Duplex setae on tarsus II of female.

Fig. 62. Duplex setae on tarsus III of female.

Fig. 63. Lateral view of male.

Fig. 64. Dorsal body seta of male.

Fig. 65. Peritreme of male.

Fig. 66. Dorsal body seta of nymph.

15. *Petrobia latens* (Müller, 1776).

Acarus latens Müller, 1776:187.

Petrobia latens (Müller), Oudemans, 1929: 285; Meyer, 1974: 130; Meyer 1987:71-73.

This species is commonly called the brown wheat mite. It has a world-wide distribution and an extensive hostplant range of which monocotyledons are the most important. Meyer (1987) reported *P. latens* from *Aca: :ioloba* E. Mey., Komqua, Kalahari Gemsbok National Park.

Subfamily Tetranychinae

16. *Eutetranychus namibianus* Meyer, 1987.

This species was described from *Salvadora persica* L., *Adenolobus pechuelii* (Kuntze) Torre & Hllc. and *Hermbstaedti: :pathulifoli: : (Engl.) Bark.* in

South West Africa (Namibia) and an unidentified wild plant from Twee Rivieren, Kalahari Gemsbok National Park (Cape Province).

Family Tenuipalpidae

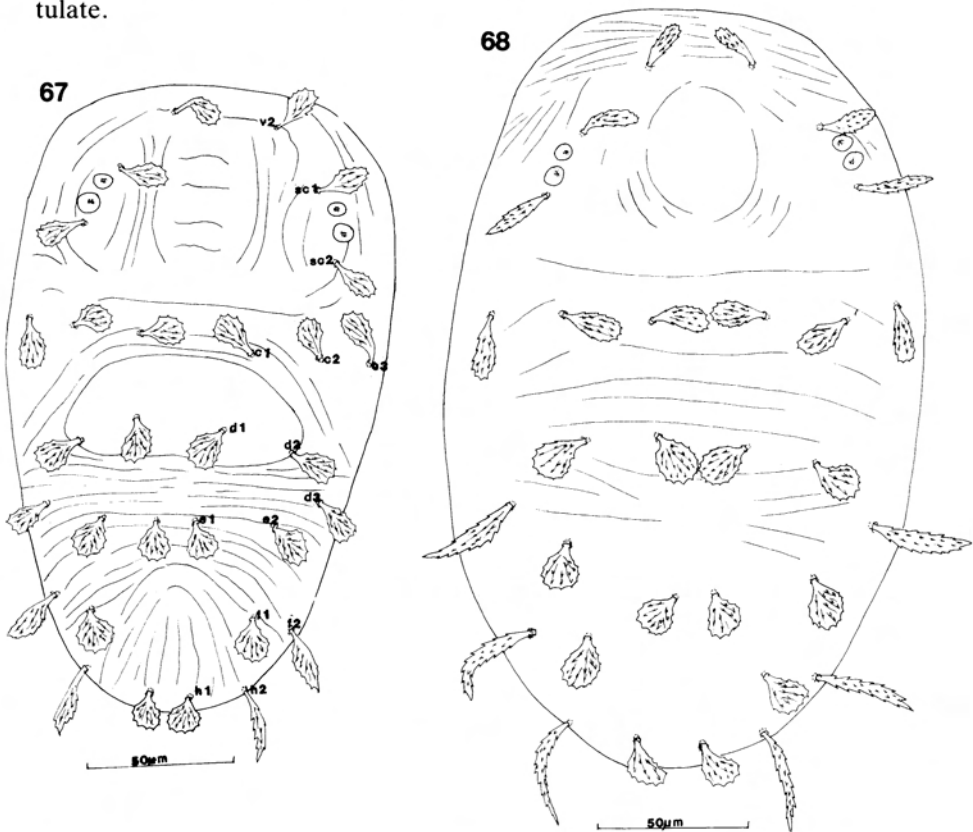
17. *Aegyptobia multistriatum* Meyer, 1979.

This species was first described from *Acacia karroo* Hayne, Pretoria (Transvaal). It was collected in the Kalahari Gemsbok National Park on *A. erioloba* E. Mey., Nossob, 4 February 1987 (E.A. Ueckermann); *A. haematoxylon* Willd., Mata-Mata, 7 February 1987 (D.P. Keetch); *A. reficiens* Wawra subsp. *reficiens*, Mata-Mata, 7 February 1987 (M.K.P. Smith Meyer).

18. *Aegyptobia kalahariensis* Meyer, 1979 Fig. 67-69

This species is unique in that the opisthosoma has four instead of five pairs of dorsolateral setae; female with broadly spatulate, serrate dorsal body setae; prodorsum almost smooth, whereas the opisthosoma bears a few widely-spaced striae; rostral shield absent. Meyer (1979) described and figured the female of *A. kalahariensis*. The male, nymph and larva are described and illustrated below.

Male. Dorsum as depicted in Fig. 67; dorsal body setae spatulate, except for opisthosomal setae f_2 and h_2 which tend to be broadly lanceolate to subs spatulate.



Figs. 67-69. *Aegyptobia kalahariensis* Meyer, 1979.
 Fig. 67. Dorsal view of male.
 Fig. 68. Dorsal view of nymph.
 Fig. 69. Dorsal view of larva.

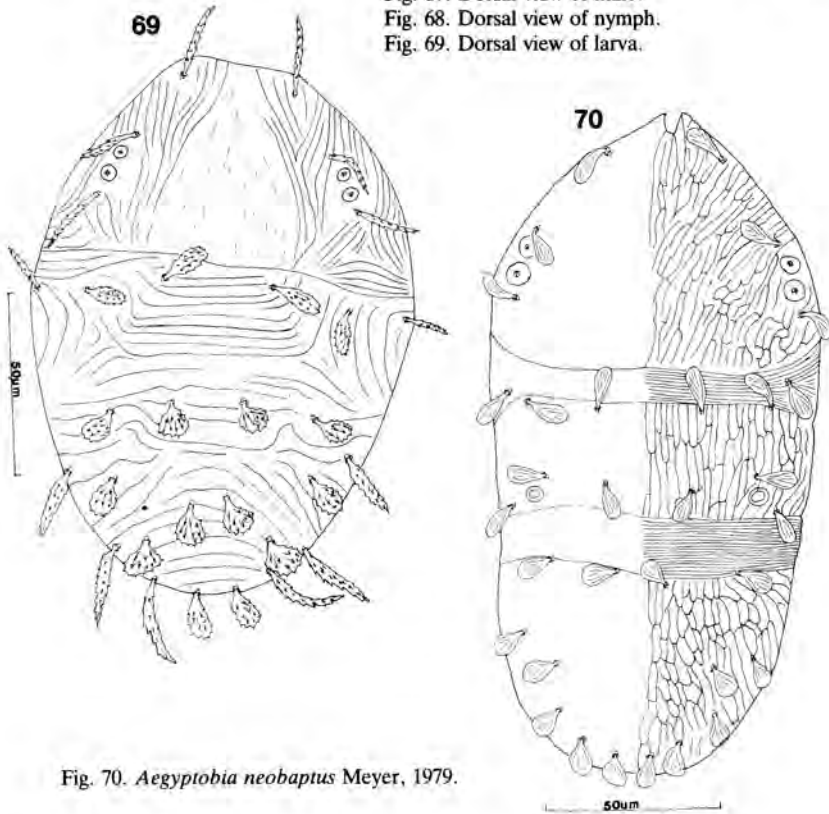


Fig. 70. *Aegyptobia neobaptus* Meyer, 1979.

Nymph. The dorsum (Fig. 68) and setal pattern resemble those of the female, except that prodorsal setae sc_2 and opisthosomal setae d_3 , f_2 and h_2 are broadly lanceolate; prodorsal setae v_2 and sc_1 tend to be subspatulate.

Larva. Dorsum (Fig. 69) with coarse striae; prodorsal setae and opisthosomal setae c_3 , d_3 , f_2 and h_2 are lanceolate or broadly lanceolate whereas the remaining body setae are spatulate.

Habitat and locality: This species was described from *Rhigozum trichotomum* Burch, Kalahari Gemsbok National Park. It was also collected on *Monechma genistifolium* (Engl.) C.B. subsp. *australe*, Nossob, Kalahari Gemsbok National Park (Cape Province), 4 February 1987 (M.K.P. Smith Meyer); *Protasparagus pearsonii* (Kies) Oberm., Dikbaardskolk, Kalahari Gemsbok National Park (Cape Province), 5 February 1987 (D.P. Keetch).

19. *Aegyptobia neobaptus* Meyer Fig. 70

The body setae of this species are broadly spatulate and without marginal serrations. The opisthosoma is provided with two pores and reticulations. Formerly only the female and nymph were described and figured. Male as depicted in Fig. 70.

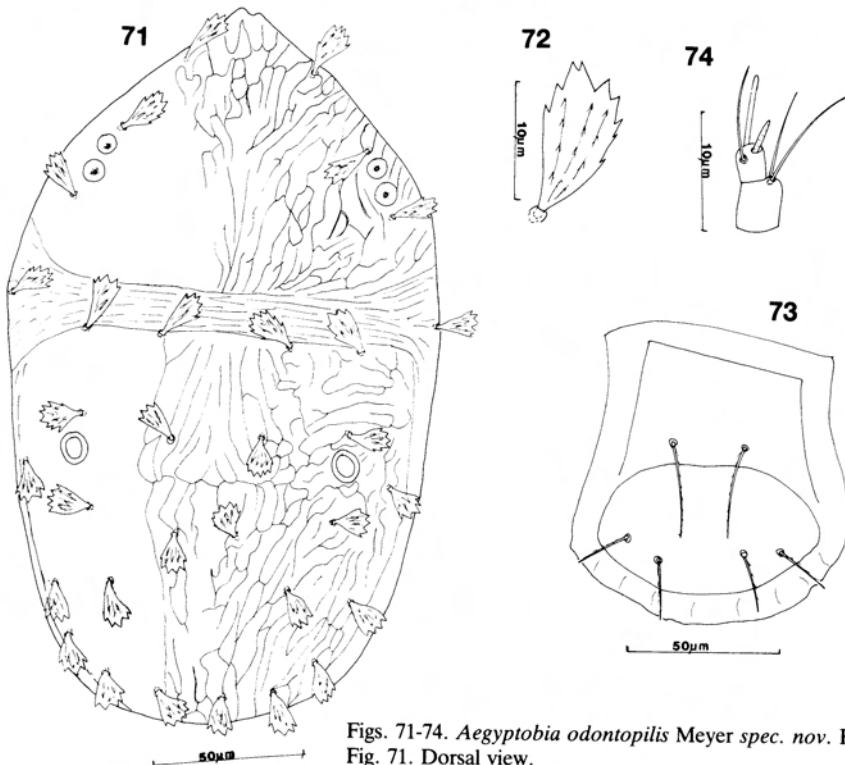
Habitat and locality: Meyer (1979) described *A. neobaptus* from *Diospyros lycioides* Desf. subsp. *lycioides*, *Populus alba* L. and *Walafrida saxatilis* (E. Mey) Rolfe in various localities in the Cape. In the Kalahari Gemsbok National Park it was collected on *Aptosimum albomarginatum* Marloth & Engl., Montrose, 9 February 1987 (M.K.P. Smith Meyer) and the dune road, near Rooibrak, 11 February 1987 (E.A. Ueckermann).

20. *Aegyptobia odontopilis* Meyer, spec. nov. Figs. 71-74

The dorsal reticulated pattern and prominent opisthosomal pores of this species resemble those of *A. neobaptus* Meyer, 1979. However, it differs from *A. neobaptus* in that the dorsal body setae are dentate and the genital setae are longer than the distances between their respective setal bases.

Female. Dimensions of holotype (measurements indicated parenthetically are variations in paratypes): length of body (including gnathosoma) 309 μ m (297-315); length (excluding gnathosoma) 257 μ m (243-263); breadth 160 μ m (151-166).

Dorsum (Fig. 71). Rostral shield small and only slightly cleft; prodorsum reticulated, reticulations mostly elongate; opisthosoma mostly with a longitudinal reticulate pattern; transverse on anterolateral margin; body setae (Fig. 72) spatulate, dentate and subequal in size.



Figs. 71-74. *Aegyptobia odontopilis* Meyer spec. nov. Female.
 Fig. 71. Dorsal view.
 Fig. 72. Dorsal body seta.
 Fig. 73. Genital shield.
 Fig. 74. Palpus.

Venter. Ventral and genital shields (Fig. 73) smooth; the one pair of aggenital and two pairs of genital setae sparsely setose; genital setae longer than distances between their bases.

Gnathosoma. Rostrum extends to distal end of genu I; distal segment of five-segmented palpus bears a solenidion which is about half as long a eupathidium (Fig. 74).

Legs. Counts of setae and solenidia (in parentheses) on podomeres of legs I-IV as follows:- coxae 3-2-1-1; femora 4-4-2-1; genua 3-3-0-0; tibia 4-4-3-3; tarsi 8(1)-8(1)-5-5; dorsal setae on femora I-II, genua I and II similar to dorsal body setae; true claws uncinat and empodia pad-like.

Male. Unknown.

Type data. Holotype female and five paratype females from *Aptosimum marlothii* (Engl.) Hiern., Rooiputs, Kalahari Gemsbok National Park (Cape Province), 9 February 1987 (M.K.P. Smith Meyer).

Family Erythraeidae

Subfamily Leptinae

Erythraeid larvae are ectoparasites of spiders, scorpions, other mites and insects but the nymphs and adults prey on insect eggs.

21. *Leptus intermedius* Meyer & Ryke, 1958.

A new record for *L. intermedius* from the Kalahari Gemsbok National Park is from *Acacia hebeclada* DC., Nossob, 4 February 1987 (M.K.P. Smith Meyer).

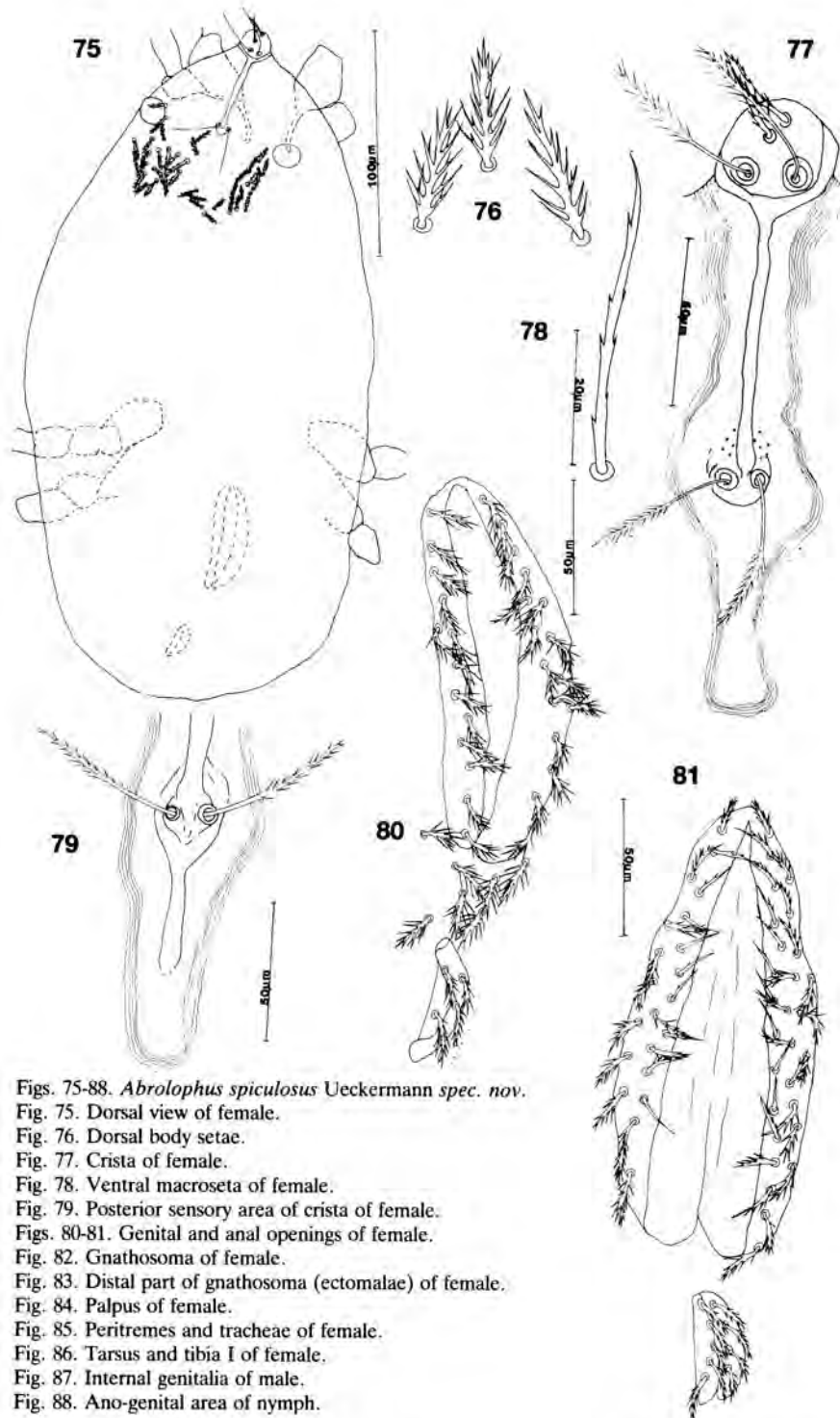
22. *Abrolophus spiculosus* Ueckermann, *spec. nov.* Figs. 75-88

This species is characterised by its spiculate setae which cover the dorsum and venter of the idiosoma.

Female. Dimensions of holotype, with variations in the measurements of the paratypes in parentheses: length of body (including gnathosoma) 828µm (808-1059); length (excluding gnathosoma) 712µm (693-886); width 385µm (404-643).

Dorsum (Fig. 75). Dorsum ovate to elongate-ovate (Fig. 75) and covered with short spiculate setae (Fig. 76); crista situated on a shield (Fig. 77); anterior sensory area rounded distally and situated on anterior margin of idiosoma; anterior sensory area with two finely serrated bothridial sensilla and one to five slightly serrated setae; posterior sensory area with only two finely serrated bothridial sensilla. In nymphs and younger females the posterior sensory area has no distinct posterior extension whereas more mature females have a short posterior extension (Fig. 79). Two relatively large eyes are situated in line with the posterior sensory area.

Venter. Like the dorsum, the venter is also covered with short, spiculate setae (Fig. 76); in some specimens two long, slightly serrated macrosetae are present posterior to coxae II (Fig. 78); genital covers of young females with 13-16 short, spiculate setae on each cover (Fig. 80); mature females bear up to 35 setae per genital cover, with one or more pairs of simple or



Figs. 75-88. *Abrolophus spiculosus* Ueckermann *spec. nov.*

Fig. 75. Dorsal view of female.

Fig. 76. Dorsal body setae.

Fig. 77. Crista of female.

Fig. 78. Ventral macroseta of female.

Fig. 79. Posterior sensory area of crista of female.

Figs. 80-81. Genital and anal openings of female.

Fig. 82. Gnathosoma of female.

Fig. 83. Distal part of gnathosoma (ectomalae) of female.

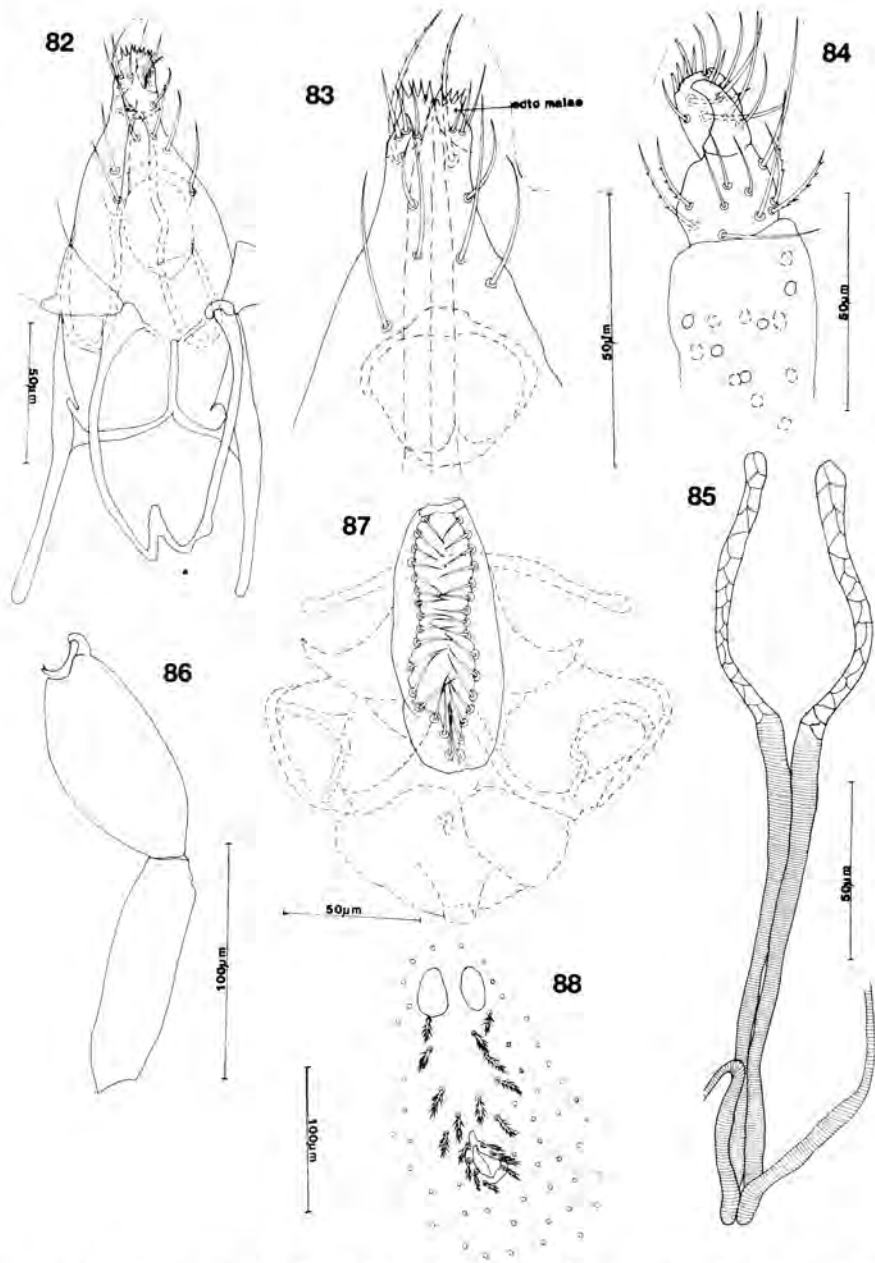
Fig. 84. Palpus of female.

Fig. 85. Peritremes and tracheae of female.

Fig. 86. Tarsus and tibia I of female.

Fig. 87. Internal genitalia of male.

Fig. 88. Ano-genital area of nymph.



slightly serrated setae (Fig. 81); anal covers with two-five pairs of serrated setae.

Gnathosoma (Fig. 82). With seven pairs of long simple setae, some slightly serrate; distally two ectomalae with 4 fimbriae each (Fig.83); palptibial claw almost as long as palptarsus (Fig.84); peritremes and tracheae as in Fig. 85; long slender protrusable chelicerae.

Legs. Tarsus I slightly swollen and almost as long as tibia I (Fig. 86); tarsi II-IV also swollen but much shorter than tibiae.

Male. Dimensions: length of body (including gnathosoma) 828-963 μ m; length (excluding gnathosoma) 693-828 μ m; width 481-597 μ m. The male resembles the female in all respects except for the internal genitalia (Fig. 87).

Nymph. Dimensions: length of body (including gnathosoma) 539-828 μ m; length (excluding gnathosoma) 423-693 μ m; width 327-491 μ m.

Nymphs are similar to the adults but have no genital opening; only two acetabula present (Fig. 88).

Type data. Holotype female from an unidentified shrub, Rooiputs, Kalahari Gemsbok National Park (Cape Province), 3 February 1987 (E.A. Ueckermann); one paratype female from *Cenchrus ciliaris* L., 5 km from Triangle to Chiredzi (Zimbabwe), 3 November 1969 (W.G. Duncombe); one paratype nymph from *Acalypha glabrata* Thunb., Agricultural Research Station, East London, (Cape Province), 30 November 1977 (M.K.P. Smith Meyer); one paratype female from *Grewia robusta* Burch., Addo Elephant National Park (Cape Province), 6 December 1977 (M.K.P. Smith Meyer); two paratype males from *Helichrysum cymosum* (L.), 3 km from Port Alfred, East London Road (Cape Province), 7 December 1977 (M.K.P. Smith Meyer); one paratype nymph from *Leucospermum cuneiforme* (Burn.F.) Rourke., between Port Alfred and East London (Cape Province), 7 December 1977 (M.K.P. Smith Meyer); one paratype nymph from *Buxus macowanii* Oliv. Agricultural Research Station, East London (Cape Province), 8 December 1977 (M.K.P. Smith Meyer); one paratype female from *Agathisanthemum bojeri* Klotzsch, Hoedspruit (Transvaal), 22 February 1978 (M.K.P. Smith Meyer); one paratype female and one paratype male from *Dombeya rotundifolia** (Hochst.) Planch., 15 km from Ohrigstad (Transvaal), 23 February 1978 (M.K.P. Smith Meyer); one paratype nymph from *Rhus undulata* Jacq., Mountain Zebra National Park (Cape Province), 5 March 1986 (E.A. Ueckermann); one paratype male and one paratype nymph from *Grewia occidentalis* L., Mountain Zebra National Park (Cape Province), 6 March 1986 (E.A. Ueckermann); one paratype female from *Chrysocoma ciliata* L., Mountain Zebra National Park (Cape Province), 6 March 1986 (M.K.P. Smith Meyer); one paratype female from *Grewia robusta* Burch., Addo Elephant National Park (Cape Province), 8 March 1986 (E.A. Ueckermann); one paratype male from *Rhigozum obovatum* Burch., Addo Elephant National Park (Cape Province), 8 March 1986 (M.K.P. Smith Meyer); two paratype nymphs from *Leucospermum conocarpodendron* (L.) Buek, 30 km from Willowmore, Baviaanskloof-road (Cape Province), 12 March 1986 (E.A. Ueckermann); one paratype female from *Acacia tortilis* (Forssk.) Hayne, 5 km from Luckhoff to P.K. le Roux Dam (Orange Free State), 13 March 1986 (M.K.P. Smith Meyer).

Discussion

The mite fauna so far collected in the Kalahari Gemsbok National Park comprises 16 phytophagous and six predaceous species. In contrast to the Addo Elephant National Park (16 phytophagous and 22 predaceous species) and the Mountain Zebra National Park (nine phytophagous and 20 predaceous species) the phytophagous species in the Kalahari Gemsbok National Park outnumbered the predaceous species. This is probably because infestations of most tetranychid mites are favoured by hot, dry conditions.

Acknowledgements

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