

A catalogue of the genus *Eupalopsellus* Sellnick (Acari: Prostigmata, Eupalopsellidae) with the description of a new species from China

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Eupalopsellid mites (Prostigmata) play a role in the biological control of spider mites (Prostigmata: Tetranychidae) and armoured scale insects (Hemiptera: Coccoidea, Diaspididae). In this paper I review the genus, list all described taxa with relevant habitat, feeding and distribution data, and provide a key to the species. *Eupalopsellus* is recorded from China for the first time and a new species, *Eupalopsellus deformatus*, is described from leaves of an unidentified grass (Gramineae) in Fujian Province, China.

Key words: Acari, Eupalopsellidae, *Eupalopsellus*, review, new species, China.

Introduction

Mites of the family Eupalopsellidae are biocontrol agents of small arthropods. They were found feeding on eggs of spider mites (Prostigmata: Tetranychidae) (MEYER & RODRIGUES, 1966) and eggs or first stage nymphs (crawlers) of armoured scale insects (Hemiptera: Coccoidea, Diaspididae) (GERSON et al., 2003), being also associated with false spider mites (Prostigmata: Tenuipalpidae) (SUMMERS, 1960) and various scale insects (ZAHER & GOMAA, 1978; MEYER & UECKERMANN, 1984, 1989).

The genus *Eupalopsellus* was proposed by SELLNICK (1949) for *E. ölandicus* Sellnick, a species based on a deutonymph that was collected under stones near the coast of Sweden. MEYER & UECKERMANN (1984) presented the first key for the eight then-known species and MEYER & UECKERMANN (1989), and VAN DIS

& UECKERMANN (1993), provided keys to the African taxa. Fourteen species have so far been described: one from Sweden (SELLNICK, 1949), one from Scotland and one from USA (SUMMERS, 1960), ten from South Africa (MEYER & RYKE, 1960; MEYER & UECKERMANN, 1984, 1989; VAN DIS & UECKERMANN, 1993) and one from Egypt (ZAHER & GOMAA, 1978). The genus is reviewed in this paper, and a catalogue, along with a key to world species, is provided. In addition, a new species, *Eupalopsellus deformatus*, is described and illustrated from leaves of an unidentified grass (Gramineae) in Fujian Province, China, being the first record of the genus from this country. The terminology of palpal and leg chaetotaxy follows GRANDJEAN (1944, 1946) and that of the idiosomal chaetotaxy follows KETHLEY (1990). Measuring method follows FAN et al. (2003) and measurements are in micrometers (μm).

Genus *Eupalopsellus* Sellnick

Eupalopsellus Sellnick, 1949: 132.

Type species. *Eupalopsellus ölandicus* Sellnick, 1949; by original designation.

Diagnosis

Adult female. Idiosoma narrowly to broadly oval in dorsoventral view. Palptibial claw setiform, rarely hooked or dentate; terminal eupathidium spiniform; counts of setae and solenidia from palptrochanter to palptarsus: 0, 3, 1, 2 – 3 + 1 claw, 4 + 1 ω + 1 subterminal eupathidium + 1 terminal eupathidium. Subcapitulum with 2 pairs of setae (*m* and *n*), *m* anterolateral to pharynx, *n* – *n* slightly wider than *m* – *m*. Prodorsum covered with a triangular shield that bears one pair of eyes, one pair of postocular bodies (*pob*) and 3–4 pairs of setae (*vi*, *ve*, *sci*, *sce*; *sce* may be on platelets), *sci* mediad of *sce*. Dorsal hysterosoma with 3 unpaired shields (*CD*, *EF* and *H*), *CD* with 2–3 pairs of setae (*c*₁, *d*₁ and *d*₂; *c*₁ may be on platelets), *EF* with 3 pairs of setae (*e*₁, *f*₁ and *f*₂), *H* with 2 pairs of setae (*h*₁ and *h*₂). Humeral setae *c*₂ on platelets or membrane. Ventral podosoma with 3 pairs of ventral setae (*1a*, *3a* and *4a*), without endopodal shields. Ventral opisthosoma with 3 pairs of aggenital setae (*ag*₁, *ag*₂ and *g*₃); genital and anal valves fused, bearing 1 pair of genital setae (*g*) and 3 pairs of pseudanal setae (*ps*₃, *ps*₂ and *ps*₁). Leg tarsal claws well developed; empodium vestigial, bearing 2 bunches of unequal tenent hairs. Counts of setae and solenidia on legs I–IV: coxae (excluding *1a*, *3a* and *4a*) 2 + 1*elcp*, 1, 2, 1–2; trochanters 1, 1, 1, 0–1; femora 4, 4, 2–3, 1; genua 2 + 1 κ , 1, 0–1, 0–1; tibiae 5 + 1 φp , 4 + 1 φp , 4 + 1 φp , 3–4 + 1 φp ; tarsi 9 – 10 + 1 ω , 8 – 9 + 1 ω , 6 + 0 – 1 ω , 6 + 0 – 1 ω .

Adult male. Similar to adult female except: dorsalmost seta on palpfemora palmate, having an aedeagus, lacking genital setae, aggenital shield laterally continuous with suranal shield (*H*), with additional solenidia on tarsi I–IV.

Remarks. The family Eupalopsellidae currently contains five genera, *Eupalopsellus*, *Eupalopsis* Canestrini 1886, *Exothorhis* Summers 1960, *Peltasellus* Meyer et Ueckermann 1984 and *Saniosulus* Summers 1960 (*Paraeupalopsellus* Smiley et Moser 1968 was moved to Mecognathidae by GERSON & WALTER, 1998). The definitions of these genera are solely based on the condition of the prodorsal and hysterosomal shields. Characters for distinguishing between species of *Eupalopsellus* in-

clude the presence/absence of a palptibial claw, the ornamentation of the dorsal shields, the ratio *pob*: eye, the position of setae *c*₁, the chaetotaxy of leg coxae, trochanters, femora, genua, tibiae and tarsi (Tab. 1), the ratio of palpal tibial setae *l*'*T*: *l*, the relative extent of the palpal terminal eupathidium, the ratio palptibia: palpgenu, the size of the humeral platelets, the ratios *h*₁: *h*₂, *1a*: *3a*: *4a*, and *g*₁: *ps*₃ and the presence/absence of ω IV. (Tab. 2).

SUMMERS (1960) doubted of the states of setae *h*₂ (= *le*) and stated that 'suranal setae *le* absent or with uncertain identity on venter'. This statement was incorrectly interpreted as the setae were absent by MEYER & UECKERMANN (1984, 1989) and followed by VAN DIS & UECKERMANN (1993).

Eupalopsellus deformatus sp. n. (Figs 1–6)

Diagnosis. Adult female. Palptibial claw absent, palptibia as long as palpgenu, *l*'*T* about one third length of *l*, terminal palptarsal eupathidium small; dorsal shields smooth, *CD* not expanded at the level of setae *d*₂, *EF* incised in front of *e*₁; *pob* nearly twice as large as *eye*; humeral platelets vestigial; *c*₁ on *CD*; ratios *h*₁: *h*₂ = 1.3: 1.0, *1a*: *3a*: *4a* = 6.0: 5.8: 1.0, *g*₁: *ps*₃ = 1.0: 1.0, coxa IV with 2 setae, trochanter IV with 1 seta, femur II with 4 setae, femur III with 3 setae, genu III and IV each with 1 seta, tibiae IV with 4 + 1 φp , tarsus I with 10 + 1 ω , tarsus II with 9 + 1 ω and tarsus IV without ω .

Adult male. Seta *l*'*T* about one fourth length of *l*, *h*₁ more than twice length of *h*₂.

Description. Female (Figs 1–3, *n* = 1)

Gnathosoma. Chelicerae slender, about twice as long as movable digits (97: 51). Palp tapered, palptibia as long as palpgenu (98), palptibial claw absent, dorsalmost seta *l*'*T* (8) one third length of *l* (24), terminal palptarsal eupathidium small; counts of setae and solenidia from palptrochanter to palptarsi: 0, 3, 1, 3, 4 + 1 ω + 1 subterminal eupathidium + 1 terminal eupathidium. Subcapitular setae *m* and *n* equal (18), *m*–*m* (8) about one half of *n*–*n* (17) and one third of *m*–*n* (24).

Idiosoma. Narrowly oval in shape, 301 long, 157 wide. Dorsal setae with small spinules. Posterior margin of prodorsal shield with deep incision between setae *sci* and *sce* on shield; *pob* (18) 1.8 times diameter of eyes (10); *sci* slightly shorter than distance *sci*–*sci*; lengths of setae *vi* 10, *ve* 14, *sci* 11, *sce* 17; distances *vi*–*vi* 14, *vi*–*ve* 21, *ve*–*ve* 43, *ve*–*sci* 45, *sci*–*sce* 32. Hysteroso-

Table 1. Key characters for identifying adult females of *Eupalopsellus*.

	Palptibial claw	Dorsal shields	pob: eye	c ₁ on	Coxa IV	Trochanter IV	Femora II, III	Gemma III, IV	Tibiae IV	Tarsi I, II
<i>brevipilus</i>	Absent	Reticulated	≈ 3	CD	2	1	4, 2	0, 0	4 + 1cp	10 + 1ω, 8 + 1ω
<i>crotovallaris</i>	Absent	Punctate	≈ 2	CD	2	0	4, 2	0, 0	4 + 1cp	10 + 1ω, 9 + 1ω
<i>deformatus</i>	Absent	Smooth	≈ 2	CD	2	1	4, 3	1, 1	4 + 1cp	10 + 1ω, 9 + 1ω
<i>fasipalmus</i>	Absent	Striated	≈ 1	CD	2	0	4, 3	1, 1	3 + 1cp	10 + 1ω, 9 + 1ω
<i>ölandicus</i>	Absent	Punctate	≈ 3	CD	2	1	4, 2	0, 0	4 + 1cp	10 + 1ω, 8 + 1ω?
<i>olearius</i>	Present	Smooth?	†	CD	†	†	4, 2?	1, 1	4 + 1cp?	†, †
<i>oresbiosis</i>	Absent	Punctate	≈ 2	CD	2	0	4, 2	1, 1	4 + 1cp	10 + 1ω, 9 + 1ω
<i>passerinae</i>	Absent	Punctate	≈ 1	CD	2	1	4, 2	0, 0	4 + 1cp	9 + 1ω, 8 + 1ω
<i>pteroniae</i>	Absent	Punctate	≈ 1	Membrane	2	1	4, 2	0, 0	4 + 1cp	9 + 1ω, 8 + 1ω
<i>retiscutatus</i>	Absent	Reticulated	≈ 2	CD	2	1	4, 2	1, 1	4 + 1cp	10 + 1ω, 9 + 1ω
<i>rostridius</i>	Present	Smooth	≈ 3	CD	2	1	4, 2	1, 1	4 + 1cp	10 + 1ω, 9 + 1ω
<i>sellnicki</i>	Absent	Punctate	≈ 5	CD	2	1	4, 3	1, 1	4 + 1cp	10 + 1ω, 9 + 1ω
<i>summersi</i>	Absent	Smooth	≈ 1	CD	2	1	4, 2	1, 1	4 + 1cp	10 + 1ω, 9 + 1ω
<i>trudis</i>	Absent	Smooth	≈ 2	CD	2	1	4, 3	1, 1	4 + 1cp	10 + 1ω, 9 + 1ω
<i>xerotopicus</i>	Absent	Smooth	≈ 2	CD	1	1	3, 3	1, 1	4 + 1cp	9 + 1ω, 9 + 1ω

Key: † information needed; ? possibly problematic or inadequate information.

Table 2. Other useful characters for identifying adult females of *Eupalopsellus*.

	<i>l'</i> : <i>l</i>	Terminal eupathidium	Palptibia: palp genu	Humeral platelets	<i>h</i> ₁ : <i>h</i> ₂	1a: 3a: 4a	g ₁ : ps ₃	ωIV
<i>brevipilus</i>	≈ 1/5	Small	≈ 1.0	Present	≈ 1.0	2.0:2.0:1.0	≈ 1.0	Absent
<i>crotovallaris</i>	< 1/3	Small	≈ 0.5	Present	≈ 1.0	2.8:1.8:1.0	≈ 1.0	Absent
<i>deformatus</i>	≈ 1/3	Small	≈ 1.0	Vestigial	≈ 1.2	6.0:5.8:1.0	≈ 1.0	Absent
<i>fasipalmus</i>	≈ 1/3	Minute	≈ 0.5	Vestigial	≈ 1.2	2.1:1.5:1.0	1.7	Present
<i>ölandicus</i>	≈ 1/6	Small	≈ 0.7	Present	≈ 1.1	1.8:1.8:1.0	†	Absent
<i>olearius</i>	†	†	≈ 0.5	†	≈ 1.0?	†	†	Present
<i>oresbiosis</i>	≈ 1/5?	Minute	≈ 0.5	Vestigial	≈ 1.0	2.0:2.0:1.0	≈ 1.0	Present
<i>passerinae</i>	> 1/3	Small	≈ 0.6	Vestigial	≈ 1.0	3.8:2.4:1.0	≈ 1.0	Absent
<i>pteroniae</i>	≈ 1/3	Small	≈ 1.0	Vestigial	≈ 1.0	2.9:2.3:1.0	≈ 1.0	Absent
<i>retiscutatus</i>	≈ 1/2	Minute	≈ 1.0	Present	≈ 1.0	3.3:4.0:1.0	≈ 1.0	Absent
<i>rostridius</i>	≈ 1/6	Minute	≈ 0.5	Vestigial	≈ 1.0?	3.9:3.5:1.0	< 1.0	Absent
<i>sellnicki</i>	< 1/4	Small	≈ 0.3	Present	≈ 1.0	2.0:2.0:1.0	≈ 1.0	Present
<i>summersi</i>	≈ 1/4	Minute	≈ 1.0	Vestigial	≈ 1.0	2.8:1.8:1.0	≈ 1.0	Absent
<i>trudis</i>	≈ 1/3	Long	≈ 1.0	Vestigial	≈ 0.5?	5.4:5.3:1.0	≈ 1.0	Absent
<i>xerotopicus</i>	≈ 1/4	Long	≈ 0.5	Vestigial	≈ 1.1	4.0:2.9:1.0	≈ 1.0	Present

Key: † information needed; ? possibly problematic or inadequate information.

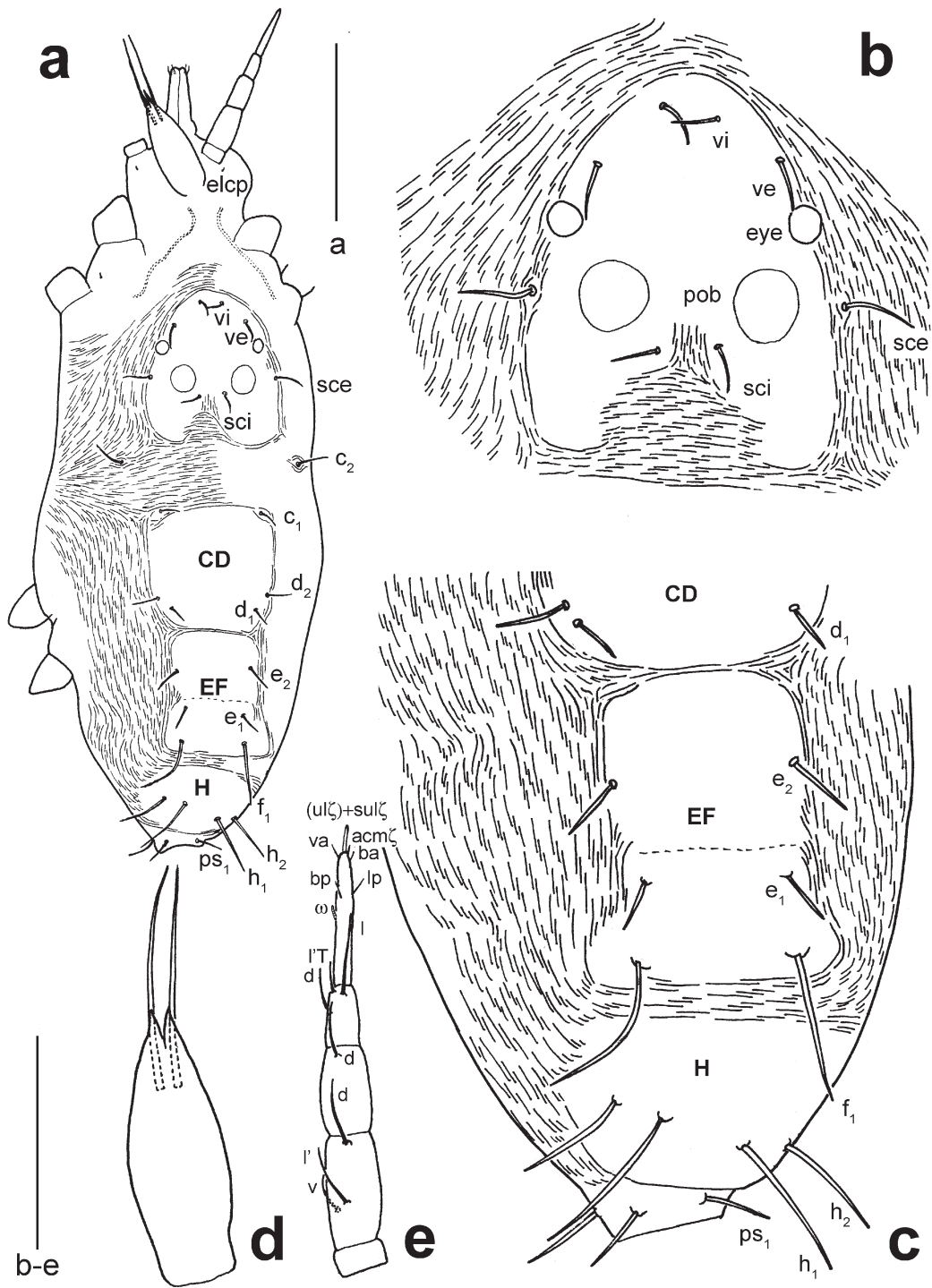


Fig. 1. *Eupalopsellus deformatus* sp. n. (adult female): a – dorsal view of subcapitulum and idiosoma; b – dorsal view of prodorsal shield; c – dorsal view of hysterosoma; d – chelicerae; e – left palp. Scales 100 μ m (a), 50 μ m (b–e).

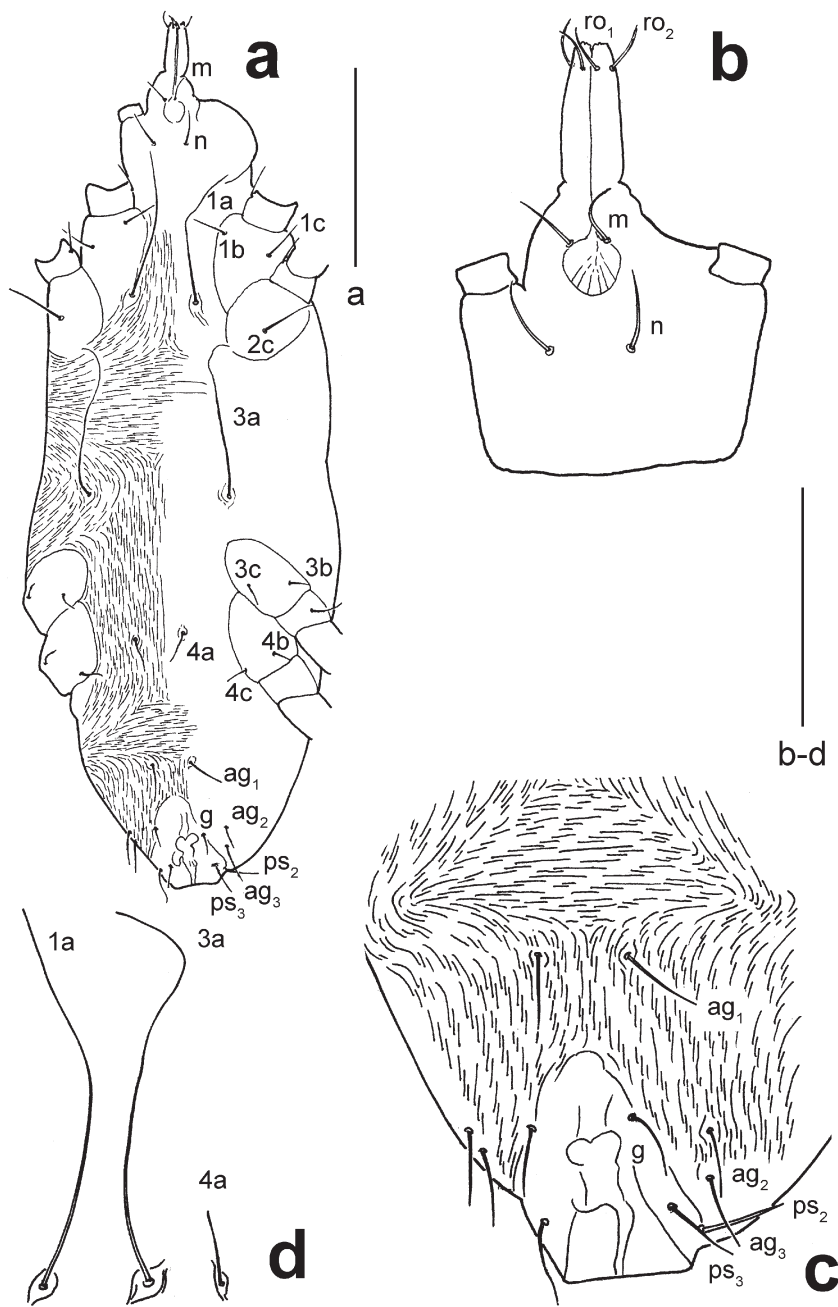


Fig. 2. *Eupalopsellus deformatus* sp. n. (adult female): a – ventral view of subcapitulum and idiosoma; b – detail view of subcapitulum; c – genito-anal area; d – ventral setae. Scales 100 μ m (a), 50 μ m (b-d).

mal shield *CD* square, with 3 pairs of setae (c_1 12, d_1 12, d_2 17); shield *EF* longitudinally rectangular, incised in front of e_1 , with 3 pairs of setae (e_1 12, e_2 16, f_1 37); ratio c_1 - c_1 : d_1 - d_1 : e_1 - e_1 : f_1 - f_1 = 1.7: 1.5: 1.0: 1.1; distances c_1 - c_1 59, c_1 -

d_1 57, d_1 - d_1 50, d_1 - d_2 9, d_1 - e_1 55, e_1 - e_1 34, e_1 - e_2 23, e_1 - f_1 18, f_1 - f_1 37. Humeral platelets vestigial, bearing setae c_2 (19). Suranal shield entire, with 2 pairs of setae, h_1 (36) and h_2 (28), ratio h_1 : h_2 = 1.3. Ventral idiosoma mostly striated; first

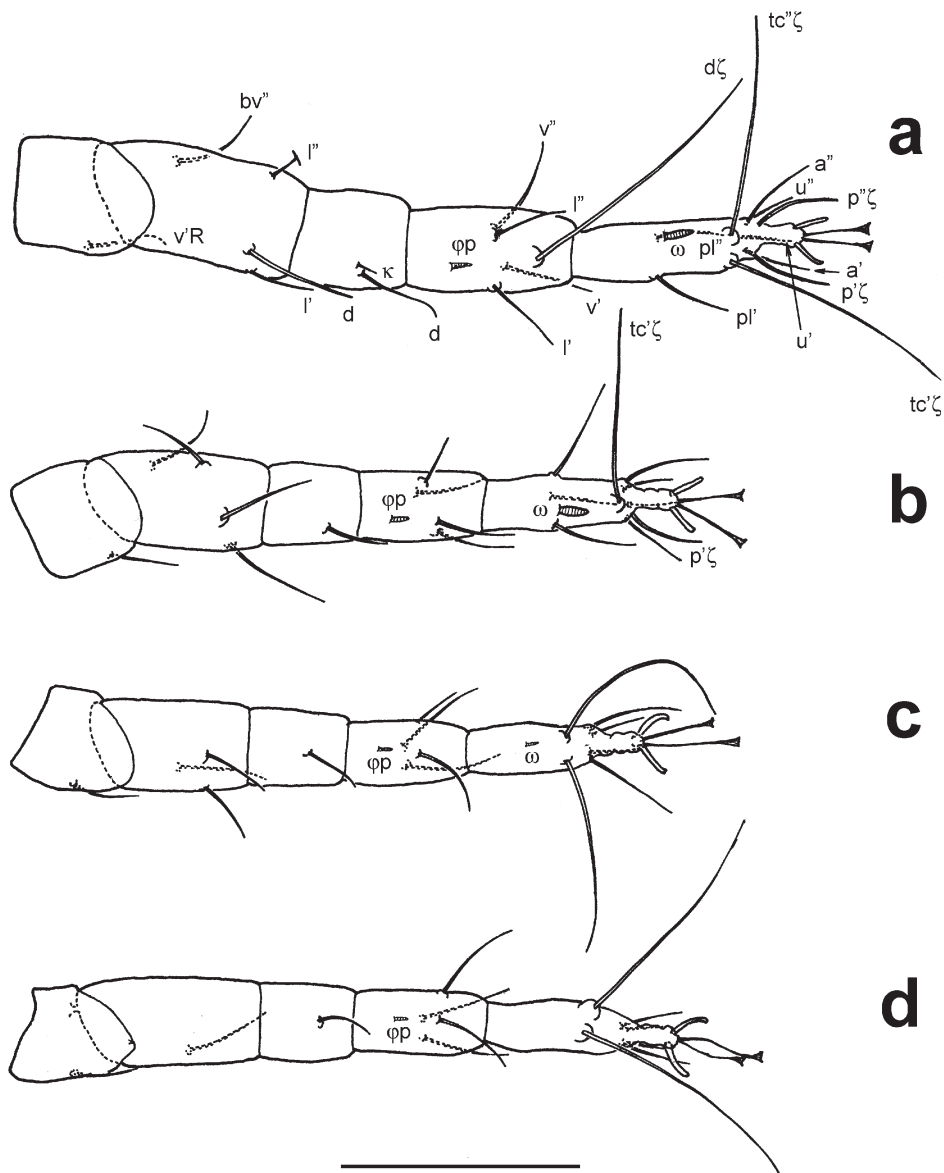


Fig. 3. *Eupalopsellus deformatus* sp. n. (adult female): a – left leg I; b – left leg II; c – left leg III; d – left leg IV. Scale 50 μ m.

and second pair of ventral setae ($1a$ 72, $3a$ 70) whip-like, more than five times length of third pair ($4a$ 12), ratio $1a: 3a: 4a = 6.0: 5.8: 1.0$. Aggenital setae on individual platelets (ag_1 16, ag_2 18, ag_3 18), distance ag_1 - ag_2 nearly four times of ag_2 - ag_3 ; genital setae small (12), third pair of pseudanal setae (ps_3 17) slender than other two pairs (ps_2 20, ps_1 16).

Legs. Lengths of leg I 170, leg II 140, leg III 131, leg IV 139. Counts of setae and solenidia on legs I-IV: coxae 2, 1, 2, 2; trochanters 1, 1, 1, 1; femora 4, 4, 3, 1; genua 1 + 1κ , 1, 1, 1; tibiae 5 + $1\varphi p$, 4 + $1\varphi p$, 4 + $1\varphi p$, 4 + $1\varphi p$; tarsi 10 + 1ω , 9 + 1ω , 6 + 1ω , 6. Lengths of solenidia, $I\omega$ 7, $II\omega$ 6, $III\omega$ 3.5.

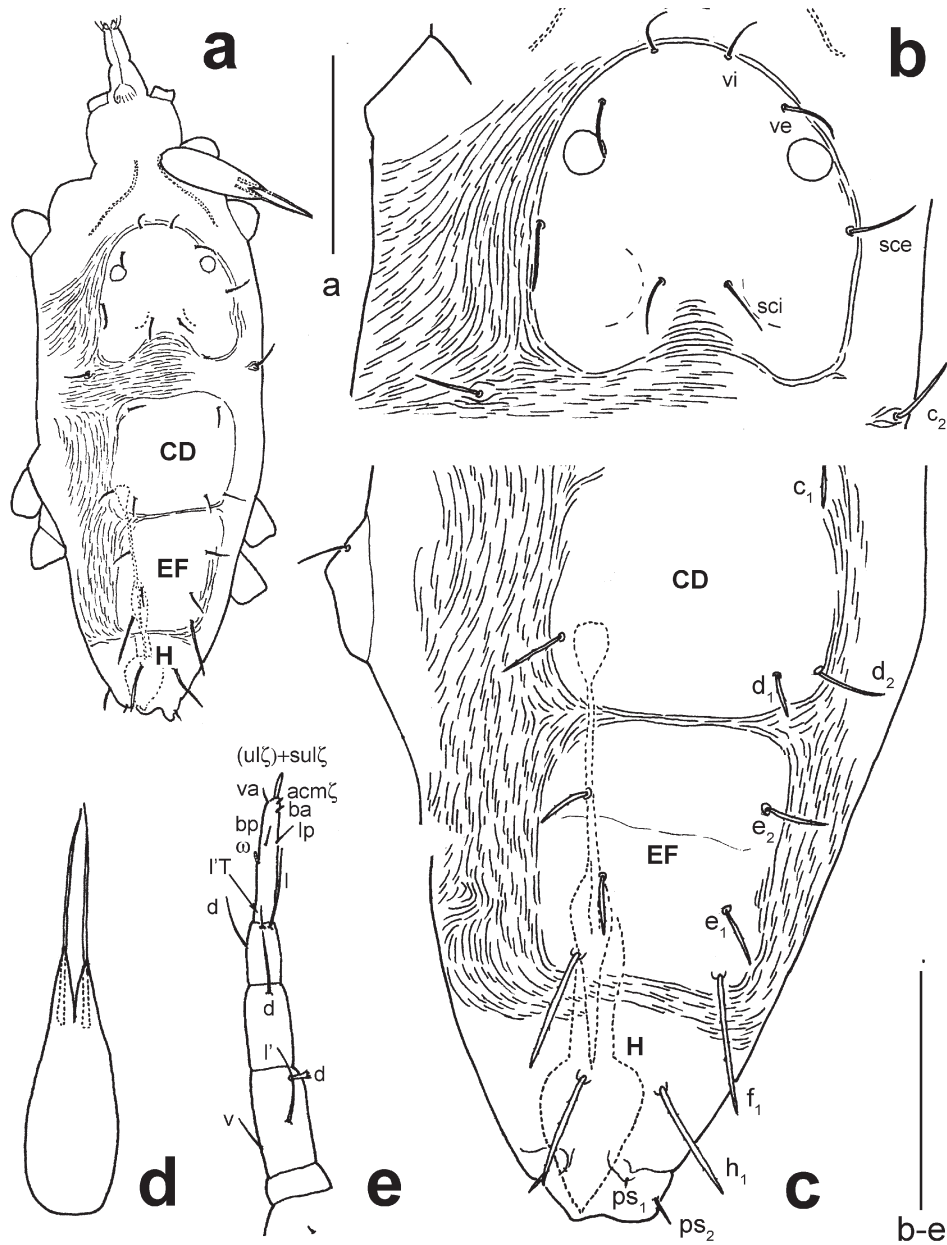


Fig. 4. *Eupalopsellus deformatus* sp. n. (adult male): a – dorsal view of subcapitulum and idiosoma; b – dorsal view of prodorsal shield; c – dorsal view of hysterosoma; d – chelicerae; e – left palp. Scales 100 μm (a), 50 μm (b–e).

Male (Figs 4–6, $n = 1$)

Gnathosoma. Chelicerae slender, twice as long as movable digits (92: 47). Palps tapered (85), l (21) about four times length of $l'T$ (5). Subcapitular setae m equal to n (17); $m-m$ (10), more than two thirds of $n-n$ (14) and one half of $m-n$ (20).

Idiosoma. Narrowly oval, 272 long, 110 wide. Posterior margin of prodorsum with deep incision between sci ; pob (19) 1.9 times diameter of eyes (10); sci nearly equal to $sci-sci$; lengths of setae vi 10, ve 12, sci 12, sce 15; distances $vi-vi$ 16, $vi-ve$ 16, $ve-ve$ 39, $ve-sci$ 38, $sci-sce$ 29. Shield CD

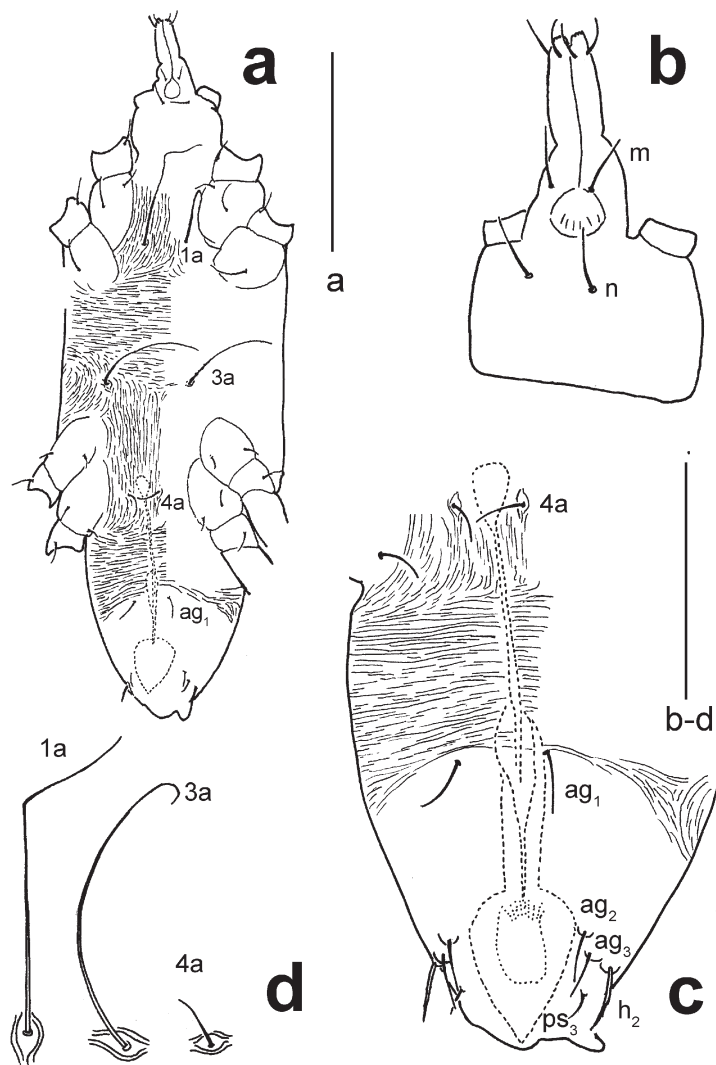


Fig. 5. *Eupalopsellus deformatus* sp. n. (adult male): a – ventral view of subcapitulum and idiosoma; b – detail view of subcapitulum; c – genito-anal area; d – ventral setae. Scales 100 μ m (a), 50 μ m (b–d).

square, with 3 pairs of setae (c_1 11, d_1 10, d_2 15); *EF* incised in front of e_1 , with 3 pairs of setae (e_1 13, e_2 13, f_1 27); ratio c_1 - c_1 : d_1 - d_1 : e_1 - e_1 : f_1 - f_1 = 1.7 : 1.4 : 1.0 : 1.1; distances c_1 - c_1 47, c_1 - d_1 46, d_1 - d_1 37, d_1 - d_2 10, d_1 - e_1 45, e_1 - e_1 27, e_1 - e_2 19, e_1 - f_1 16, f_1 - f_1 31. Humeral setae c_2 15. Suranal setae h_1 (25) more than twice length of h_2 (11), ratio h_1 : h_2 = 2.3. Ventral setae 1a 69, 3a 70, 4a 12; ratio 1a : 3a : 4a = 5.8 : 5.8 : 1.0. Aggenital setae (ag_1 12, ag_2 13, ag_3 13) on a large scutiform shield, ag_1 - ag_2 nearly seven times of ag_2 - ag_3 ; pseudanal setae small (ps_3 6, ps_2 6, ps_1 7).

Legs. Lengths of leg I 156, leg II 130, leg III

125, leg IV 137. Counts of setae and solenidia on legs I–IV: coxae 2, 1, 2, 2; trochanters 1, 1, 1, 1; femora 4, 4, 3, 1; genua 1 + 1 κ , 1, 1, 1; tibiae 5 + 1 φ p, 4 + 1 φ p, 4 + 1 φ p, 4 + 1 φ p; tarsi 10 + 2 ω , 9 + 2 ω s, 6 + 2 ω , 6 + 1 $r\omega$. Lengths of solenidia I ω_1 7, I ω_2 7, II ω_1 7, II ω_2 7, III ω_1 3, III ω_2 7, IV ω 7.5.

Material examined. Holotype: female, from leaves of an unidentified grass (Gramineae), Yangyuan, Zhenhe County, Fujian Province, China, 27.IX.2000, leg. J.-Z. Lin. In the collection of College of Plant Protection, Fujian Agricultural and Forestry University, Fuzhou, Fujian Province, China. **Allotype:** male, same data as holotype.

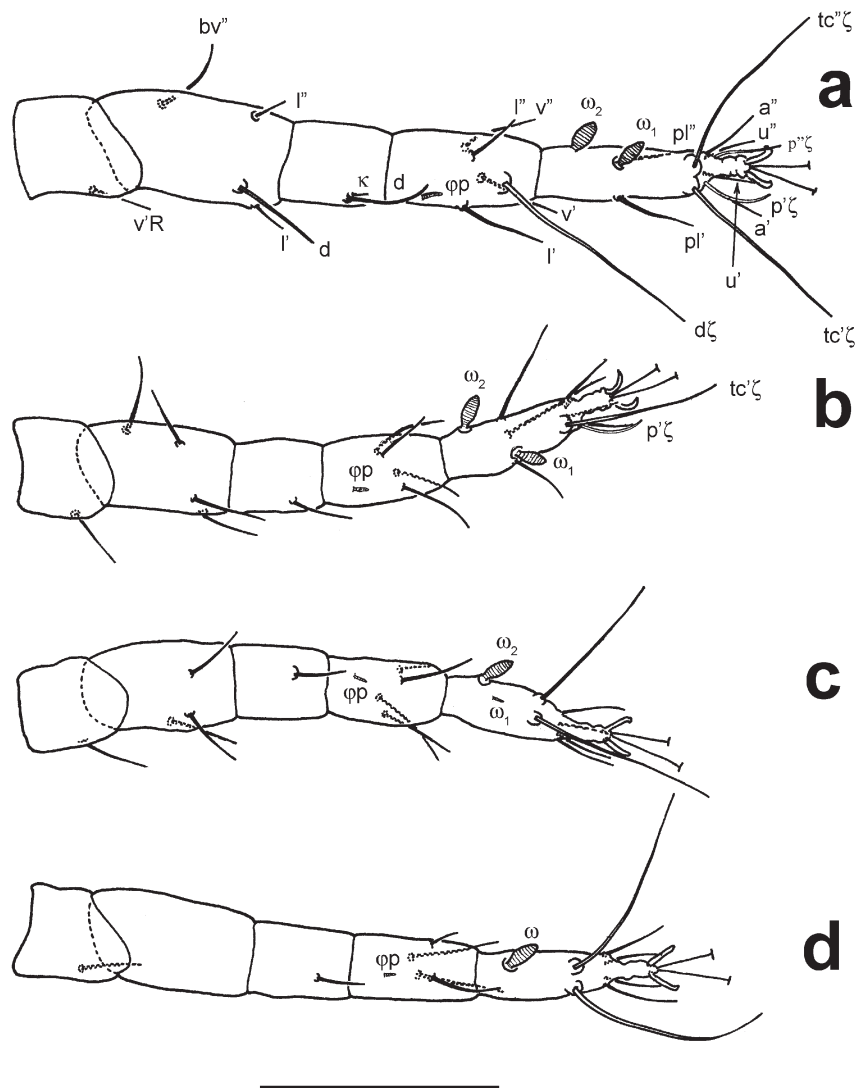


Fig. 6. *Eupalopsellus deformatus* sp. n. (adult male): a – left leg I; b – left leg II; c – left leg III; d – left leg IV. Scale 50 μ m.

Remarks. Adult female of *E. deformatus* sp. n. resembles that of *Eupalopsellus trudis* Summers, 1960 and can be distinguished from the latter by (i) the dorsal hysterosomal shield (*CD*) is not expanded at the level of setae d_2 ; (ii) the shield *EF* is incised in front of e_1 ; and (iii) the suranal setae h_2 of the adult female are longer (ratio $h_1/h_2 = 1.3$).

Key to adult females of *Eupalopsellus* Sellnick, 1949

1 Palptibial claw developed, dentate or hooked 2

- Palptibial claw vestigial or seta-like 3
- 2 Palptibial claw large, hooked; *sci* < *sci-sci*; tarsi IV with ω *E. olearius* Zaher et Gomaa, 1978
- Palptibial claw small, dentate; *sci* > *sci-sci*; tarsi IV without ω *E. rostridus* Summers, 1960
- 3 Femur III with 3 setae; genu III with 1 seta . 4
- Femur III with 2 setae; genu III with 0–1 seta 8
- 4 Coxa IV with 2 setae; femur II with 4 setae . 5
- Coxa IV with 1 seta; femur II with 3 setae ...

- E. xerotopicus* Van Dis et Ueckermann, 1993
5 Trochanter IV with 1 seta; tibia IV with 4+1 φ p
..... 6
– Trochanter IV without seta; tibia IV with 3 +
1 φ p..... 6
E. fasipalmus Van Dis et Ueckermann, 1993
6 Dorsal shields smooth; humeral platelets vesti-
gial; tarsi IV without ω 7
– Dorsal shields punctate; humeral platelets obvi-
ous; tarsi IV with ω 7
..... *E. sellnicki* Meyer et Ueckermann, 1984
7 Shield *CD* expanded at the level of setae d_2 ;
EF slightly incised in front of setae e_1 ; setae
 h_1 about twice length of h_2 7
..... *E. trudis* Summers, 1960
– Shield *CD* not expanded at the level of setae d_2 ;
EF strongly incised in front of setae e_1 ; setae
 h_1 about 1.3 times length of h_2 7
..... *E. deformatus* sp. n.
8 Genu III with 1 seta 9
– Genu III without seta 11
9 Trochanter IV with 1 seta; tarsi IV without ω
..... 10
– Trochanter IV without seta; tarsi IV with ω ..
..... *E. orebiosis* Meyer et Ueckermann, 1984
10 Dorsal shields reticulated; humeral platelets ob-
vious; *pob* about twice as large as eyes
..... *E. retiscutatus* Meyer et Ueckermann, 1989
– Dorsal shields smooth; humeral platelets vesti-
gial; *pob* about as large as eyes
..... *E. summersi* Meyer et Ueckermann, 1984
11 Trochanter IV with 1 seta; tarsus II with 8 +
0 – 1 ω 12
– Trochanter IV without seta; tarsus II with 9 +
1 ω 12
..... *E. crotovallaris*
Van Dis et Ueckermann, 1993
12 Setae c_1 situated on shield *CD*..... 13
– Setae c_1 on membrane in front of *CD*
..... *E. pteroniae* Van Dis et Ueckermann, 1993
13 Humeral platelets obvious; *pob*:eye = 3.0 : 1.0;
 $1a$: $3a$ = 1.0 : 1.0 14
– Humeral platelets vestigial; *pob*:eye = 1.0 : 1.0;
 $1a$: $3a$ = 1.6 : 1.0..... 14
..... *E. passerinae* Van Dis et Ueckermann, 1989
14 Dorsal shield reticulated; $1a$: $3a$: $4a$ = 2.0 : 2.0
: 1.0 *E. brevipilus* (Meyer et Ryke, 1960)
– Dorsal shield punctate; $1a$: $3a$: $4a$ = 1.8 : 1.8
: 1.0 *E. landicus* Sellnick, 1949

A catalogue of *Eupalopsellus* Sellnick

Eupalopsellus brevipilus (Meyer et Ryke), 1960:
223 (deutonymph).

Eupalopsis brevipilus Meyer et Ryke, 1960: 223.

Redescription. Meyer et Rodrigues, 1966: 17 (adult fe-
male, male and nymphae).

Habitat. Holotype from an unidentified wild shrub.
Other material from *Acacia karroo*, *Acacia* sp.,
Agathisanthemum bojeri, *Artemisia afra*, *Aster*
muricatus, *Barleria obtusa*, *Barleria* sp., *Bauhinia*
sp., *Bequaertiodendron magaliesmontanum*, *Brachy-
laena discolor*, *Brachylaena rotunda*, *Brachys-
tega manga*, *Bridelia mollis*, *Buddleia dysophylla*,
Buddleia saligna, *Canthium inerme*, *Capparis* sp.,
Chloris gayana, *Citrus* sp., *Combretum imberbe*,
Combretum sp., *Conyza podocephala*, *Crotalaria*
doidgeae, *Diospyros lycioides*, *Dombeya cymosa*,
Dombeya rotundifolia, *Eclipta prostrata*, *Ehretia*
rigida, *Erica* sp., *Eriosema psoraleoides*, *Euclea*
crispa, *Ficus sycomorus*, *Gossypium herbaceum*,
Gossypium sp., grass, *Grewia lexawita*, *Grewia*
occidentalis, *Helichrysum kraussii*, *Helichrysum*
rugulosum, *Helichrysum rosum*, *Hemizygia brac-
teosa*, *Hypoestes verticillaris*, *Indigofera cryptan-
tha*, *Indigofera* sp., *Ipomoea magnusiana*, *Lan-
nea discolor*, *Lantana rugosa*, *Limociera foveolata*, *Lip-
pia javanica*, *Lippia rehmannii*, *Lonchocarpus ca-
passa*, *Melhania forbesii*, *Ozoroa paniculosa*, *Pan-
icum maximum*, *Peltophorum afticanum*, *Pentar-
rhinum insipidum*, *Piliostigma thonningii*, *Pluchea*
dioscoridis, *Psoralea obtusifolia*, *Rhoicissus digi-
tata*, *Rhus macowani*, *Rhus pyroides*, *Rhus undu-
lata*, *Rubus pinnatus*, *Rhyinchosia nitens*, *Senecio*
graminifolius, *Senecio pterophorus*, *Senecio* sp.,
Solanum pandurufare, *Solanum sodomaicum*, *Ta-
bernaemontana* sp., *Tarchonanthus camphoratus*,
Tephrosia nana, *Teucrium capense*, *Tithonia di-
versifolia*, *Trichilia emetica*, *Tylophora flanganii*,
Vaucheria infausta, *Verbena brasiliensis*, *Vernonia*
ampla, *Vernonia natalensis*, *Vernonia staeheli-
noides*, *Viburnum opulus*, *Waltheria americana*,
grass, an unidentified plant of the Acanthaceae, an
unidentified plant of the Verbenaceae, soil under
Acacia sp., wild grape.

Feeding habits. Eggs of *Eotetranychus falcatus*
Meyer et Rodrigues (MEYER & RODRIGUES,
1966).

Distribution. Cameroun (MEYER & UECKER-
MANN, 1984), Mozambique (MEYER & RODRI-
GUES, 1966; MEYER & UECKERMANN, 1984,
1989), South Africa (MEYER & RYKE, 1960;
MEYER & RODRIGUES, 1966; MEYER & UECKER-
MANN, 1984, 1989), Zimbabwe (MEYER & UECK-
ERMANN, 1984, 1989).

Eupalopsellus crotovallaris Van Dis et Ueck-
ermann, 1993: 130 (adult female and male).

Habitat. Holotype from *Erica* sp. Other material unknown.

Feeding habits. Unknown.

Distribution. South Africa (VAN DIS & UECKERMANN, 1993).

Eupalopsellus deformatus Fan, sp. n. (adult female and male).

Habitat. Holotype and allotype from an unidentified plant of the family Gramineae.

Feeding habits. Unknown.

Distribution. China (FAN, this paper).

Eupalopsellus fasipalmus Van Dis et Ueckermann, 1993: 127 (adult female).

Habitat. Holotype from an unidentified plant. Other material unknown.

Feeding habits. Unknown.

Distribution. South Africa (VAN DIS & UECKERMANN, 1993).

Eupalopsellus ölandicus Sellnick, 1949: 132 (deutonymphal female).

Eupalopsellus ölandicus Sellnick, 1949: 132.

Redescription. Willmann 1952: 163 (adult male); Summers, 1960: 126 (adult female and male); Livshitz et Kuznetsov 1976: 72 (adult female).

Habitat. Holotype from under stones. Other material from *Achillea* sp. (milfoil), *Artemisia* spp., *Berberis* sp., *Betula nana*, *Calluna*, *Cistus* sp., *Erica* sp., *Jasminum* sp., lichen-covered pine bark, *Rubus* sp.

Feeding habits. Associated with the tenuipalpid *Brevipalpus aeolus* Pritchard & Baker (SUMMERS, 1960).

Distribution. Belgium (COOREMAN, 1958), England (EVANS, 1954), North Sea Island of Wangerooge (WILLMANN, 1952), Sweden (SELLNICK, 1949), USA (SUMMERS, 1960), Crimea (LIVSHITZ & KUZNETZOV, 1976).

Remarks. In Sellnick's original description of the holotype (a deutonymph) there were no solenidia ω on tarsi III and IV. According to SUMMERS (1960), solenidium ω is present on tarsi III of the female and on tarsi III and IV of the male. LIVSHITZ & KUZNETZOV (1976) agreed with Summers' description on the presence of ω on tarsi III of the female, but their specimens from Crimea had 9 + 1 ω setae on tarsus II instead of 8 + 1 ω .

Eupalopsellus olearius Zaher et Gomma, 1978: 552 (adult female and male).

Habitat. Holotype from olive buds (*Olea europaea*). Other material unknown.

Feeding habits. Associated with scale insects (ZAHER & GOMAA, 1978).

Distribution. Egypt (ZAHER & GOMAA, 1978; MEYER & UECKERMANN, 1984, 1989).

Eupalopsellus oresbiosis Meyer et Ueckermann, 1984, 128 (adult female and male, deutonymph, protonymph and larva).

Habitat. Holotype from *Penaea mucronata*. Paratypes from *Capparis sepiaria*, *Cliffortia ruscifolia*, *Penaea mucronata*, *Zygophyllum morgsana*. Other material from *Pteleopsis myrtifolia*.

Feeding habits. Unknown.

Distribution. South Africa (MEYER & UECKERMANN, 1984, 1989).

Eupalopsellus passerinae Meyer et Ueckermann, 1989, 12 (adult female and male, deutonymph and protonymph).

Habitat. Holotype from *Passerina vulgaris*. Other material unknown.

Feeding habits. Unknown.

Distribution. South Africa (MEYER & UECKERMANN, 1989).

Eupalopsellus pteroniae Van Dis et Ueckermann, 1993: 134 (adult female).

Habitat. Holotype from *Pteronia incana*. Other material unknown.

Feeding habits. Unknown.

Distribution. South Africa (VAN DIS & UECKERMANN, 1993).

Eupalopsellus retiscutatus Meyer et Ueckermann, 1989, 74, 13 (adult female).

Habitat. Holotype from *Helichrysum wilmsii*. Other material unknown.

Feeding habits. Unknown.

Distribution. South Africa (MEYER & UECKERMANN, 1989).

Eupalopsellus rostridius Summers, 1960, 128 (adult female).

Redescription. Livshitz et Kuznetsov, 1976: 72 (adult female).

Habitat. Holotype from heather. Other material from *Citrus* sp., *Juniperus sabinæ* (juniper), *Ligustrum vulgare* (privet).

Feeding habits. Unknown.

Distribution. Scotland (SUMMERS, 1960), USA (RAKHA & MCCOY, 1985), Crimea (LIVSHITZ & KUZNETZOV, 1976).

Eupalopsellus sellnicki Meyer et Ueckermann, 1984, 126 (adult female and male, deutonymph, protonymph and larva).

Habitat. Holotype from an unidentified plant. Paratypes from *Acacia giraffae*, *Acacia haematoxylon*, *Acacia karroo*, *Acacia tortilis*, *Achyroopsis leptostachya*, *Aspalathus acuminata*, *Asparagus suaveolens*, *Azima tetraacantha*, *Citrus sinensis*, *Citrus* sp., *Citrus* sp. infested with red scale, *Cliffortia ruscifolia*, *Coffea arabica*, *Elytropappus rhinocerotis*, *Erica carifolia*, *Erica spectabilis*, *Euclea divinorum*, *Euclea natalensis*, *Exomis microphylla*, grass, *Grewia occidentalis*, *Helichrysum reflexum*, *Helichrysum rugulosum*, *Lessertia stricta*, *Lithospermum cinereum*, *Lotononis trisegmenta*, *Lycopersicum esculentum*, *Musa sapientum*, *Passerina paleacea*, *Passerina* sp., *Pentzia quinquefida*, *Persea americana*, *Pollichia campestris*, *Pteleopsis myrtifolia*, *Rhigozum brevispinosum*, *Rhus gueinzii*, *Rhus refracta*, *Rubus affinis*, *Salvadora angustifolia*, *Senecio rosmarinifolius*, *Stoebe plumosa*, *Stoebe vulgaris*, *Uvaria caffra*, and unidentified grass and plant. Other material from *Acalypha indica*, *Bothriochloa insculpta*, *Dodonaea angustifolia*, *Otiophora cupheoides*, *Spiraea cantoniensis*, *Verbena tenuisecta*, *Vernonia amygdalina*.

Feeding habits. Associated with red scale (*Aonidiella aurantii* [Maskell]) on citrus (MEYER & UECKERMANN, 1984).

Distribution. Angola (MEYER & UECKERMANN, 1984, 1989), South Africa (MEYER & UECKERMANN, 1984, 1989).

Eupalopsellus summersi Meyer et Ueckermann, 1984, 130 (adult female).

Habitat. Holotype from *Helichrysum* sp. Other material unknown.

Feeding habits. Unknown.

Distribution. South Africa (MEYER & UECKERMANN, 1984, 1989).

Eupalopsellus trudis Summers, 1960: 130 (adult female and male).

Redescription. Livshitz et Kuznetsov, 1976: 73 (adult female).

Habitat. Holotype and allotype from *Damparia* sp. Paratypes from *Artemisia* sp. (sage brushland), *Agropyrum* sp. (wheat grass), dead leaves and grass, red juniper. Other material from *Artemisia* sp. (wormwood), *Agropyrum* sp. (wheat grass), 5 cm deep in the soil under wheat.

Feeding habits. Unknown.

Distribution. Germany (STRANDTMANN & PRA-SSE, 1976), USA (SUMMERS, 1960); Crimea (LIVSHITZ & KUZNETSOV, 1976).

Eupalopsellus xerotopicus Van Dis et Ueckermann, 1993: 127 (adult female).

Habitat. Holotype from an unidentified plant. Other material unknown.

Feeding habits. Unknown.

Distribution. South Africa (VAN DIS & UECKERMANN, 1993).

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Faunistic records of chironomids (Diptera, Chironomidae) from Slovakia

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The last check-list of Chironomidae (BITUŠÍK & LOSOS, 1997) consisted of 327 valid species for the Slovak Republic. Since this time, some papers with information about the first chironomid records from Slovakia have been published (e.g. HAMERLÍK, 2002).

This paper references about five chironomid species firstly recorded from Slovakia. All specimens were collected from lakes of glacial origin in the West and High Tatra Mts. Pupal exuviae were sampled by skimming the water surface along the lake shore with a 200 µm mesh net attached to a 1.5 m long pole.

Exuviae were mounted in Berlese fluid on slides and identified by the author, using the key by LANGTON (1991) and LANGTON & VISSER (2002).

Material is deposited in the Dept. of Biology and

General Ecology, Faculty of Ecology and Environmental Sciences, Banská Štiavnica, Slovakia.

The list of Chironomidae of Slovakia currently consists of 345 species.

Diamesa laticauda Serra-Tosio, 1964

Material examined: N Slovakia, High Tatra Mts, Nefcerka valley (DFS 6886 – reference grid number of the Databank of Fauna of Slovakia), Nižné Terianske pleso lake, 1941 m a.s.l., 3.VIII.2001, 1 pupal exuvium, leg. P. Bitušík

Remarks: Distributed in alpine regions of Europe (LANGTON & VISSER, 2002).

Cricotopus (Cricotopus) pilosellus Brundin, 1956

Material examined: N Slovakia, West Tatra Mts, Jam-

nická dolina valley (DFS 6884), Nižné Jamnícke pleso lake, 1728 m a.s.l., 6.VII.2002, 1 pupal exuvium, leg. M. Hubková; N Slovakia, High Tatra Mts, Veľká Studená dolina valley (DFS 6886), Prostredné Zbojnícke pleso lake, 1969 m a.s.l., 16.VIII.2002, 8 pupal exuviae, Vyšné Zbojnícke pleso lake, 1972 m a.s.l., 15.VIII.2001, 4 pupal exuviae, leg. P. Kološta
Remarks: The species has a Holarctic distribution pattern (ASHE & CRANSTON, 1990).

Cricotopus (Isocladius) perniger (Zettstedt, 1850)
Material examined: N Slovakia, West Tatra Mts, Roháčska dolina valley (DFS 6784), Druhé Roháčske pleso lake, 1650 m a.s.l., 5.VII.2002, 14 pupal exuviae, Tretie Roháčske pleso lake, 1653 m a.s.l., 5.VII.2002, 6 pupal exuviae; Jamnícka dolina valley (DFS 6884), Nižné Jamnícke pleso lake, 1728 m a.s.l., 6.VII.2002, 17 pupal exuviae; Račkova dolina valley (DFS 6884), Vyšné Račkovo pleso lake, 1697 m a.s.l., 13.VII.2002, 5 pupal exuviae; Bystrá dolina valley (DFS 6885), Vyšné "menšie" Bystré pleso lake, 1837 m a.s.l., 27.VIII.2002, 1 pupal exuvium, leg. M. Hubková; N Slovakia, High Tatra Mts, Mengusovská dolina valley (DFS 6886), Veľké Hincovo pleso lake, 1946 m a.s.l., 14.VIII.2001, 7 pupal exuviae, Malé Hincovo pleso lake, 1923 m a.s.l., 17.VIII.2002, 7 pupal exuviae; Bielowodská dolina valley (DFS 6886), Vyšné Žabie Bielowodské pleso lake, 1699 m a.s.l., 16.VIII.2001, 2 pupal exuviae; Temnosmrečinská dolina valley (DFS 6886), Vyšné Temnosmrečinské pleso lake, 1716 m a.s.l., 19.VIII.2001, 1 pupal exuvium, Nižné Temnosmrečinské pleso lake, 1674 m a.s.l., 19.VIII.2001, 1 pupal exuvium, leg. P. Kološta
Remarks: Known from the Polish part of the High Tatras [HIRVENOJA (1973) refers to a information of G. Mothes in 1965]; distributed in Europe.

Hydrobaenus spinnatis Saether 1976
Material examined: N Slovakia, West Tatra Mts, Bystrá dolina valley (DFS 6885), Vyšné "menšie" Bystré pleso lake, 1837m a.s.l., 16.VI.2003, 1 pupal exuvium, leg. M. Hubková.
Remarks: Judging by the available data, a rare species, probably with Holarctic distribution, known from the French Alps (pond, 2000 m a.s.l.) (LANGTON & VISSER, 2002) and Canada (ASHE & CRANSTON, 1990).

Psectrocladius (Mesopsectrocladius) barbatipes Kieffer, 1923

Material examined: N Slovakia, West Tatra Mts, Roháčska dolina valley (DFS 6784), Druhé Roháčske pleso lake, 1650 m. a.s.l., 5.VII.2002, 3 pupal exuviae, Tretie Roháčske pleso lake, 1653 m a.s.l., 27.VIII.2002, 5 pupal exuviae, Štvrté Roháčske pleso lake, 1718 m a.s.l., 27.VIII.2002, 3 pupal exuviae, leg. M. Hubková.
Remarks: Known from Europe and North Africa (LANGTON & VISSER, 2002).

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