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New species and records of mites of the family Stigaeidae (Acari: Prostigmata) collected from mosses in Southern Chile

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ABSTRACT — Five new species of the family Stigaeidae (Acari: Prostigmata), Stigmaeus palustris n. sp., Stigmaeus flexisetus n. sp., Stigmaeus patagoniensis n. sp., Pseudostigmaeus magellanicus n. sp. and Eryngiopus techuelche n. sp. are described from mosses in Southern Chile (Patagonia). Eustigmaeus ovatus (Chaudhri, 1965) is recorded from Chile for the first time and redescribed; Eustigmaeus chilensis (Chaudhri, 1965) is recorded from Tierra del Fuego for the first time and also redescribed.

KEYWORDS — Acari; Prostigmata; Raphignathoidea; systematics; predatory mites; mosses; Patagonia

INTRODUCTION

The predatory mite family Stigaeidae (Acari: Prostigmata) is the largest in the superfamily Raphignathoidea and includes more than 500 species in 32 valid genera (Zhang et al. 2011; Doğan et al. 2015). Members of the family have been collected in a large range of habitats. Many stigaeid mites from the genera Mediolata Canestrini, 1889, Agistemus Summers, 1960, Eryngiopus Summers, 1964 and some others are free-living predators of other microarthropods on plant leaves (Fan and Zhang 2005); Most species of the largest genus Stigmaeus Koch, 1836 inhabit soil, forest litter, lichens and mosses (Doğan et al. 2015a). Many species of the genera Eustigmaeus Berlese, 1910 and Ledermuelleriopsis Willmann, 1953 inhabit mosses and some feed on mosses (Gerson 1972). The adult females of some Eustigmaeus and Stigmaeus species have been found attached to and apparently feeding on adult phlebotomine sandflies (Diptera: Psychodidae) in several regions of the world (Swift 1987; Zhang and Gerson 1995). Some species of Eryngiopus considered predators of crawlers of some Hemiptera (Doğan et al. 2015b).

The stigaeid mites of Chile are poorly studied. At present only five species have been recorded from Chile: Eustigmaeus chilensis (Chaudhri, 1965), E. microsegnis (Chaudhri, 1965), Zetzellia mapuchina Gonzalez-Rodriguez, 1965, Agistemus fleschneri Summers, 1960 and A. longisetus Gonzalez-Rodriguez, 1963 (Chaudhri 1965; Gonzalez-Rodriguez 1965).

During a study of stigaeid mites inhabiting mosses in Patagonia (Southern Chile) five new species were revealed: Stigmaeus palustris n. sp., Stigmaeus flexisetus n. sp., Stigmaeus patagoniensis n. sp., Pseudostigmaeus magellanicus n. sp. and Eryngiopus techuelche n. sp. These new species are de-
scribed in this paper. *Eustigmaeus ovatus* (Chaudhri, 1965) is recorded from Chile for the first time and redescribed; *Eustigmaeus chilensis* (Chaudhri, 1965) is recorded from Tierra del Fuego for the first time and also redescribed.

**Materials and Methods**

Mites were collected from mosses using Berlese funnels and mounted in Hoyer’s medium. All samples were taken in southern part of Chilean Patagonia in vicinities of Punta Arenas and Tierra del Fuego Archipelago. Mosses were collected mainly on swamps surrounded by *Nothofagus* forests. In the description below, the palpal, idiosomal and the leg setations follow those of Kethley (1990). All measurements are given in micrometers (µm) for the holotype and available paratypes (in parenthesis). In descriptions of leg setation the number of solenidia is given in parentheses. The type material is not shared with museums in country of its origin (Chile) because of limited number of type specimens and lack of specialist on raphignathoid mites. Photographs were taken with a digital camera AxioCam ICc5 via the compound microscope Carl Zeiss AxioImager.A2 with phase-contrast and DIC illumination.

**Results**

**Systematics**

**Family Stigmaeidae Oudemans, 1931**

**Genus Eustigmaeus Berlese, 1910**

Type species: *Stigmaeus kermesinus* Koch, 1841, by original designation.

*Eustigmaeus ovatus* (Chaudhri, 1965)  
(Figures 1-6)

*Ledermuelleria ovata* Chaudhri, 1965, p. 480, figs. 18-20, 32.

**Redescription**

**Female** (Figures 1-5) — Idiosoma oval in outline. Length of idiosoma 475, width 385.


Gnathosoma (Figures 2, 5B, C) — Tibial claw well-developed. Setae *d* of palpal femur blunt-ended and barbed; other palpal setae of femur, genu and tibia (except *l’*Ti) pointed and barbed; seta *l*’ of tibia distinctly thickened, blunt-ended and with median protuberance; seta *w* of palpatarsus weakly barbed; other setae of palpatarsus smooth. Number of setae on palpal segments: *Tr* 0, *Fe* 3 (*d*, *l’, *v*’), *Ge* 2 (*d*, *l”), *Ti* 3 (*d*, *l’, *l”), *Ta* 8(1) (fused eupathidia *ul’*, *ul”*, *sul*, eupathidion *acm*, *ba*, *bp*, *lp*, 1 solenidion *ω*). Palpal femur and genu with subcuticular reticulation. Palpal supracoxal setae (*ep*) spine-like. Rostrum of subcapitulum short and wide. Adoral setae smooth, curved, *or2* blunt – ended; other subcapitular setae (*m*, *n*) weakly barbed, pointed. Basal part of subcapitulum with weak subcuticular reticulation (Figure 5C). Lengths of subcapitular setae: *m* 36, *n* 30, *or1* 18, *or2* 24. Chelicerae dorsally with numerous small dimples (Figure 5B).
**FIGURE 1**: *Eustigmaeus ovatus* (Chaudhri, 1965), female: A – idiosomal dorsum, B – idiosomal venter.

**Legs (Figures 3, 4)** — Empodial raylets weakly capitate. Leg I (Figure 3A). Leg segments with reticulation. Coxae I posterodorsally with spine-like leg supracoxal setae (*el*). Leg setation: Tr 1 (*v*), Fe 6 (*d*, *l*, *l", *v", *bv"), Ge 4 (*d*, *l", *l", *k*), Ti 5(2) (*d*, *l", *v", *v", *v", *v", *v")*, Ta 13(1) (*p", *tc", *tc", *ft", *u", *u", *a", *a", *pl", *pl"*, *vs*, *ω*). Setae (*p*), (*tc*) and (*ft*) of tarsus and *d* of tibia are eupathidia. Setae *d* of genu and *d* of femur slightly widened distally, with hyaline sheaths. Seta k 34 long, smooth, more than half of length of seta *d* of genu I. Solenidion *ω* 23, finger-shaped; solenidion *ϕ* 16 baculiform, solenidion *ϕp* 36 attenuate. Setae (*p"), (*tc"), (*a") and (*vs*) of tarsus weakly barbed; (*u") smooth. Leg II (Figure 3B). Leg setation: Tr 1 (*v"), Fe 5 (*d", *l", *l", *v", *bv")*, Ge 4 (*d", *l", *k*), Ti 5(1) (*d", *l", *v", *v", *ϕ*), Ta 9(1) (*p", *tc", *tc", *u", *u", *a", *a", *pl", *vs*, *ω*). Setae *p", *tc" of tarsus and *d* of tibia represented by eupathidia. Setae *d* of femur with rounded tip. Solenidion *ω* 22 finger-shaped; solenidion *ϕp* 28 attenuate. Setae *k* 10 needle-like. Setae *tc", (*a")*, *pl"* and *vs* of tarsus weakly barbed; (*u") smooth. Leg III (Figure 4A). Leg setation: Tr 2 (*v", *l"), Fe 3 (*d", *l", *ev"), Ge 1 (*d*), Ti 5(1) (*d", *l", *v", *v", *ϕ*), Ta 7(1) (*tc", *tc", *u", *u", *a", *a", *vs*, *ω*). Solenidion *ω* 7 baculiform; solenidion *ϕp* 29 attenuate. Setae *d* of tibia, genu and femur with rounded tips. Setae (*u*) of tarsus smooth, other tarsal setae weakly barbed. Leg IV (Figure 4B). Leg setation: Tr 1 (*v"), Fe 2 (*d", *ev"), Ge 1 (*d*), Ti 5(1) (*d", *l", *v", *v", *ϕ*), Ta 7(1) (*tc", *tc", *u", *u", *a", *a", *vs*, *ω*). Solenidion *ω* 7 baculiform; solenidion *ϕp* 29 attenuate. Setae *d* of tibia, genu and femur with rounded tips. Setae (*u") of tarsus smooth, other tarsal setae weakly barbed.

**Male and immatures unknown.**


Distribution — This species is known from U.S.A. (California) (Chaudhri 1965). It is a first record for the fauna of South America.

Remarks — A specimen from Chile fits well into
FiguRE 3: *Eustigmaeus ovatus* (Chaudhri, 1965), female: A – leg I, B – leg II.
Figure 4: *Eustigmaeus ovatus* (Chaudhri, 1965), female: A – leg III, B – leg IV.
FIGURE 5: Phase-contrast micrographs of *Eustigmaeus ovatus* (Chaudhri, 1965), female: A – lateral part of prodorsum and seta $c_1$, B – chelicerae and setae $vi$, C – subcapitulum, D – coxae I-II and endopodal plate.
original description of *Eustigmaeus ovatus*, except for long seta *k* of genu I, which is more than half length of seta *d* of genu I. In original description of *E. ovatus* seta *k* of genu I short, needle-like and about 1/4 length of seta *d* of genu I (Chaudhri 1965). I consider the specimens from Chile and U.S.A. are conspecific with difference in length of seta *k* of genu I resulting from geographical variability.

**Eustigmaeus chilensis** (Chaudhri, 1965)

(Figures 6-10)


**Redescription**

**Female** (Figures 6-10) — Idiosoma oval in outline. Length of idiosoma (measurements for 5 specimens) 390 – 435, width 310 – 320.


Gnathosoma (Figures 7, 10C, F) — Tibial claw well-developed. Setae of palpal femur slightly thickened and distinctly barbed; other palpal setae of genu and tibia (except l’Ti) weakly barbed; seta l’ of tibia very thick, lanceolate; seta va of palptarsus weakly barbed; other setae of palptarsus smooth. Number of setae on palpal segments: Tr 0, Fe 3 (d, l’, v”), Ge 2 (d, l”), Ti 3 (d, l’, l”), Ta 8(1) (fused eupathidia ul’, ul”, sul, eupathidion acm, ba, bp, lp, 1 solenidion ω). Palpal segments without reticulation. Palpal supracoxal setae (ep) needle-like. Rostrum of subcapitulum short and wide. All subcapitular setae pointed and weakly barbed. Basal part of subcapitulum without subcuticular reticulation (Figure 10F). Lengths of subcapitular setae: m 24 – 25, n 20 – 21, or1 19 – 21, or2 20 – 21. Chelicerae dorsally smooth (Figure 10C).

Legs (Figures 8, 9) — Empodial raylets weakly capitate. Leg I (Figure 8A). Leg segments without reticulation. Coxae I posterodorsally with needle-like leg supracoxal setae (el). Leg setation: Tr 1 (v’), Fe 6 (d, l’, l”, v’, v”, bv”), Ge 4 (d, l’, l”, k), Ti 5(2) (d, l’, l”, v’, v”, φ, ϕp), Ta 13(1) (p’, p”, tc’, tc”, ft’, ft”, ω, ω, u”, a”, pl”, pl”), setae (p) (tc) and (ft) of tarsus are eupathidia. Setae d, l’, l” of tibia and genu, d and l” of femur distinctly widened, curved, barbed. Seta k 7 – 8 long, needle-like, about five times shorter than seta d of genu I. Solenidion ω 23 – 25 long, finger-shaped; solenidia φ 10 and ϕp 16 baculiform. All setae of tarsus (except eupathidia) barbed. Leg II (Figure 8B). Leg setation: Tr 1 (v’), Fe 5 (d, l’, l”, v’, bv”), Ge 3 (d, l’, l”), Ti 5(1) (d, l’, l”, v’, v”, φ), Ta 8(1) (tc’, tc”, u”, a”, pl”, ω). Seta tc’ of tarsus represented by eupathidion. Seta p’ absent. Seta k of genu absent. Setae d, l’, l” of tibia and genu, d and l” of femur distinctly widened, curved, barbed. Solenidion ω 15 – 17 finger-shaped; solenidion ϕp 12 – 13 baculiform. All setae of tarsus (except eupathidion) barbed. Leg III (Figure 9A). Leg setation: Tr 2 (v’, l’), Fe 3 (d, l’, εv’), Ge 1 (d), Ti 5(1) (d, l’, l”, v’, v”, φ), Ta 7(1) (tc’, tc”, u”, a”, pl”, ω). Solenidion ω 5 – 6 baculiform; solenidion ϕp 7 – 8.
Figure 8: Eustigmaeus chilensis (Chaudhri, 1965), female: A – leg I, B – leg II.
FIGURE 9: Eustigmaeus chilensis (Chaudhri, 1965), female: A – leg III, B – leg IV.
Figure 10: Phase-contrast micrographs of *Eustigmaeus chilensis* (Chaudhri, 1965), female: A – anterolateral part of prodorsum, B – seta $d_1$, C – gnathosoma dorsally, D – ventral metapodosomal plate, E – anogenital area, F – subcapitulum.
baculiform. Setae \(d, l', l''\) of tibia, \(d\) of genu, \(d\) and \(l'\) of femur distinctly widened, curved, barbed. All setae of tarsus barbed. Leg IV (Figure 9B). Leg setation: \(\text{Tr} 1 (v'), \text{Fe} 2 (d, e'), \text{Ge} 1 (d), \text{Ti} 5(1) (d, l', l'', v', v'', v, \varphi), \text{Ta} 7 (tc', tc'', u', u'', a', a'', vs, \psi).\) Solenidion \(\omega\) absent; solenidion \(\varphi p 7 – 9\) baculiform. Setae \(d, l', l''\) of tibia, \(d\) of genu and femur distinctly widened, curved, barbed. All setae of tarsus barbed.

**Male and immatures unknown.**

Material examined — Eleven females, Chile, Patagonia, Tierra del Fuego island, \(54^\circ 29' 550''\) S, \(68^\circ 43' 103''\) W, from *Sphagnum magellanicum* in the swamp, 3 November 2015, coll. A.A. Khaustov.

Distribution — This species was described from Chile (Jardin Botanico Nacional, Vina del Mar) (Chaudhri 1965). It was also recorded from Latvia and Lithuania (Kuznetsov and Petrov 1984) and Turkey (Doğan 2007). However records of *E. chilensis* from Latvia, Lithuania and Turkey would need confirmation. This species is first time recorded in the fauna of Tierra del Fuego.

**Genus *Stigmaeus* Koch, 1836**

Type species: *Stigmaeus cruentus* Koch, 1836, by subsequent designation by Berlese (1910).

**Stigmaeus palustris** n. sp.

(Figures 11-15)

**Description**

*Female* (Figures 11-15) — Length of idiosoma 505 (535), width 280 (330) (Two females measured).

Idiosomal dorsum (Figures 11A, 15B, C) — Idiosoma fusiform, soft, mostly striated. Eyes absent. Propodosomal plate with setae \(vi\) and \(ve\), weakly defined by more narrow striae than outside ones; with distinct median propodosomal apodeme and tiny dimples (Figure 15B). Area anteriorly and anterolaterally to propodosomal plate with numerous microtubercules. All dorsal setae smooth; setae \(ve\) and \(c_2\) long, pointed; other dorsal setae short, blunt-ended. Setae \(c_2\) situated laterally. Ratio \(ve/c2 = 4\). Suranal plate divided, with two pairs of setae. Setae \(c_2\) and \(f_1\) situated on platelets, remaining surface of hysterosoma without plates. Lengths of dorsal setae: \(vi 29 (32), ve 105 (100), sci 26 (36), sce 33 (32), c_1 24 (21), c_2 110 (120), d_1 22 (22), d_2 22 (22), e_1 23 (21), c_2 23 (24), f_1 34 (31), h_1 33 (33), h_2 36 (33).\)

Idiosomal venter (Figure 11B) — Ventral setae smooth and pointed, four pairs of aggenital setae; \(ag_1\) situated on soft cuticle; \(ag_2 - ag_4\) on weakly defined platelet. Two pairs of genital setae. Cuticle posteriorly to gnathosomal base and posterolateral to coxae IV with microtubercules. Endopodal plates weakly developed. Coxal fields with small dimples. Lenghts of ventral setae: \(l_1 40 (42), l_2 30 (29), l_3 87 (92), l_4 150 (160), l_5 42 (44), l_6 44 (43), l_7 36 (37), l_8 24 (26), l_9 100 (105), l_{10} 28 (30), l_{11} 24 (23), l_{12} 26 (27), l_{13} 22 (22), l_{14} 26 (27), l_{15} 39 (38), l_{16} 26 (26), l_{17} 50 (50), p_{s1} 49 (45), p_{s2} 42 (41), p_{s3} 28 (26).\)

Gnathosoma (Figures 12, 15A, D) — Tibial claw large. Setae \(l'\) of palpable Tibia thin, seta-like. All palpal setae pointed; setae of femur and genu weakly barbed. Number of setae on palpal segments: \(Tr 0, Fe 3 (l, v', v), Ge 2 (d, l'), Ti 3 (d, l', l)\), Ta 8(1) (fused eupathidia \(ul', ul", sul, eupathidium \(acm, ba, bp, lp, 1\) solenidion \(\omega\)). Palpal supracoxal setae \((ep)\) small, thick, with distinctly rounded tip. Chelicerae dorsally with numerous dimples (Figure 15A). Rostrum of subcapitulum long. Subcapitular setae pointed and smooth. Basal part of subcapitulum without reticulation (Figure 15D). Lengths of subcapitular setae: \(m 34 (35), n 37 (38), or_1 19 (20), or_2 16 (16).\)

Legs (Figures 13, 14) — Empodial raylets distinct capitately. Leg segments without reticulation. Leg I (Figure 13A). Coxae I posterodorsally with small, thick, with distinctly rounded tip leg supracoxal setae \((el)\). Leg setation: \(Tr 1 (v'), Fe 4 (d, l', l'', bv"), Ge 5 (d, l', l", v', k), Ti 5(1) (d, l', l", v', v", \varphi p), Ta 13(1) (p', p", tc', tc", fl", ft", u', u", a', a", pl", pl", vs, \psi).\) Setae \(d\) of tibia, \((p)\) and \((tc)\) of tarsus are eupathidia. Seta \(k 8 (9)\) needle-like. Solenidion \(\omega\) short 11 (10), finger-shaped; solenidion \(\varphi p 23 (18)\) attenuate. solenidion \(\varphi\) absent. Setae \((ft), (pl), (a)\) and \(vs\) of tarsus weakly barbed; \((u)\) smooth. Leg II (Figure 13B). Leg setation: \(Tr 1 (v'), Fe 4 (d, l', l", bv"), Ge 1 (l'), Ti 5(1) (d, l', l", v', v", \varphi p), Ta 8(1) (tc', tc", u', u", a', a", vs, pl", \omega).\) Seta \(p'\) of tarsus absent. Solenidion \(\omega\) short 9 (9) finger-shaped; solenidion \(\varphi p 16 (15)\) attenuate. Seta \(pl'\) weakly barbed, other tarsal setae smooth. Setae \(d\) of tibia and \((tc)\) of tarsus very long.
and smooth. Leg III (Figure 14A). Leg setation: Tr 1 ($v'$), Fe 2 ($d, ev'$), Ge 0, Ti 5(1) ($d, l', l''$, $v'$, $v''$, $\varphi p$), Ta 7(1) ($tc'$, $tc''$, $u'$, $u''$, $a'$, $a''$, $vs$, $\omega$). Solenidion $\omega$ 6 (6) baculiform; solenidion $\varphi p$ 17 (18) attenuate. Seta $d$ of tibia and ($tc$) of tarsus very long and smooth. Seta $v'$ of trochanter weakly barbed, other leg setae smooth. Leg IV (Figure 14B). Leg setation: Tr 1 ($v'$), Fe 2 ($d, ev'$), Ge 0, Ti 5(1) ($d, l', l''$, $v'$, $v''$, $\varphi p$), Ta 7 ($tc'$, $tc''$, $u'$, $u''$, $a'$, $a''$, $vs$). Solenidion $\omega$ absent; solenidion $\varphi p$ 17 (16) attenuate. Setae $d$ of tibia and ($tc$) of tarsus very long and smooth. Setae $v''$ of tibia and $v'$ of trochanter weakly barbed, other leg setae smooth.

Male and immatures unknown.

Type material — Female holotype, slide N° VS171114, Chile, Patagonia, vicinity of Punta Arenas, 53°38′028″S, 70°57′017″W, 17 November 2014, Sphagnum magellanicum in swamp, coll. V.A. Stolbov. Paratypes: 1 female, same data.

Etymology — The name of the new species is derived from Latin word palustris meaning swamp and refers to a habitat of the new species.

Differential diagnosis — The new species is most similar to Stigmaeus arboricola Wood, 1981, described from New Zealand (Fan and Zhang 2005), by soft and finely striated body, divided suranal plate and similar leg setation. However, it differs from the latter by the absence of seta $h_3$ (vs. present in S. arboricola), absence of seta $l'$ of femur III (vs. present in S. arboricola), absence of solenidion $\omega$ of tarsus IV (vs. present in S. arboricola).
Figure 13: Stigmaeus palustris n. sp., female: A – leg I, B – leg II.
FIGURE 14: Stigmaeus palustris n. sp., female: A – leg III, B – leg IV.
Figure 15: DIC micrographs of *Stigmaeus palustris* n. sp., female: A – gnathosoma dorsally, B – prodorsum, C – opisthosoma dorsally, D – gnathosoma ventrally.
**Description**

*Stigmaeus flexisetus* n. sp.  
(Figures 16-22)

**Female** (Figures 16-19, 22) — Length of idiosoma 405 (335), width 260 (285) (two females measured).

Idiosomal dorsum (Figures 16A, 22A, B, D) — Idiosoma oval, soft, mostly covered by smooth dorsal plates. Eyes present. Propodosomal plate with setae vi, ve and sci; setae sce situated on separate platelets. Postocular bodies large, weakly defined. Striae anteriorly to propodosomal plate without microtubercles. All dorsal setae pointed; setae f1, h1 and h2 weakly barbed in basal half, other dorsal setae smooth. Setae ve, sce, c2, d1, d2, c1, e2, f1, h1 and h2 very long and flexible. Ratio ve/sci = 6.2. Setae e1 situated on platelets separated from central hysterosomal plate (Figures 22A, B, D); in female holotype right seta e1 situated on platelet, which partly fused to central hysterosomal plate (Figure 22D). Suranal plate not divided, with two pairs of setae. Setae d2, e2, and f1 situated on separate plates. Lengths of dorsal setae: vi 67 (100), ve 180 (190), sci 29 (27), sce 150 (160), c1 76 (90), c2 130 (140), d1 120 (140), d2 145 (165), e1 115 (135), c2 160 (175), f1 100 (160), h1 100 (125), h2 90 (110).

Idiosomal venter (Figure 16B) — Ventral setae smooth or weakly barbed, pointed. Three pairs of aggenital setae situated on single plate. One pair of genital setae. Endopodal plates without subcuticular reticulation. Lengths of ventral setae: 1a 35 (47), 1b 36 (35), 1c 57 (60), 2b 57 (56), 2c 38 (34), 3a 42 (43), 3b 33 (31), 3c 33 (31), 4a 49 (45), 4b 33 (36), 4c 32 (31), ag1 37 (43), ag2 35 (41), ag3 42 (43), g 36 (34), ps1 70 (80), ps2 39 (45), ps3 36 (41).

Gnathosoma (Figure 17) — Tibial claw large. Setae l’ of palpal tibia thin, seta-like. All palpal setae pointed; setae of femur and genu weakly barbed; seta va of palptarsus weakly barbed; other setae of palptarsus smooth. Number of setae on palpal segments: Tr 0, Fe 3 (d, l’, v’), Ge 2 (d, l’), Ti 3 (d, l’, l”), Ta 8(1) (fused eupathidia ul’, ul”, sul, eupathidion acm, ba, bp, lp, 1 solenidion ω). Palpal supra-coxal setae (ep) with thickened basal part and thin distal one. Chelicerae dorsally smooth. Rostrum of subcapitulum long. Subcapitular setae pointed, smooth. Basal part of subcapitulum without retic-
Figure 17: *Stigmaeus flexisetus* n. sp., female: A – gnathosoma dorsally, B – subcapitulum.
FIGURE 18: *Stigmaeus flexisetus* n. sp., female: A – leg I, B – leg II.
Figure 19: Stigmaeus flexisetus n. sp., female: A – leg III, B – leg IV.
FIGURE 20: Stigmaeus flexisetus n. sp., male: A – opisthosomal dorsum, B – opisthosomal venter.

FIGURE 21: Stigmaeus flexisetus n. sp., male: A-D – solenidia on tarsi I-IV, respectively.
ulation (Figure 22C). Lengths of subcapitular setae: m 46 (53), n 32 (29), or1 27 (24), or2 30 (33).

Legs (Figures 18 – 19) — Empodial raylets weakly capitate. Leg segments without reticulation. Leg I (Figure 18A). Coxae I posterodorsally with weakly capitate. Leg segments without reticulation.

13(1) (bv”)

Leg setation: Tr 1 (bv”), Ge 6 (d, l’, l”, v’, v”, bo”), Ge 4 (d, l’, l”, k), Ti 5(2) (d, l’, l”, v’, v”, ϕp), Ta 13(1) (p’, p”, tc’, tc”, ft”, ft”, u’, u”, a”, a”, pl”, pl”, vs, ω). Setae of tibia, (p), (tc) and (ft) of tarsus are eupathidia. Seta k 6 (10) needle-like. Solenidion ω 16 (21), finger-shaped; solenidion ϕp 30 (33) attenuate. solenidion ϕ 11 (13) baculiform. All setae of tarsus (except eupathidia) weakly barbed. Leg II (Figure 18B). Leg setation: Tr 1 (v”), Fe 5 (d, l’, l”, v’, bo”), Ge 3 (l’, l”, k), Ti 5(1) (d, l’, l”, v’, v”, ϕp), Ta 9(1) (p’, tc’, tc”, u’, u”, a”, a”, pl”, vs, ω). Setae p’ and tc’ of tarsus are eupathidia. Solenidion ω 12 (16) finger-shaped; solenidion ϕp 27 (31) attenuate. Setae d of tibia and femur long and smooth. All setae of tarsus (except eupathidia) weakly barbed. Leg III (Figure 19A). Leg setation: Tr 2 (l’, v”), Fe 3 (d, l’, ev”), Ge 0, Ti 5(1) (d, l’, l”, v’, v”, ϕp), Ta 7(1) (tc’, tc”, u’, u”, a”, a”, vs, ω). Solenidion ω 7 (9) baculiform; solenidion ϕp 23 (24) attenuate. Setae d of tibia long and smooth. Seta (a) and vs of tarsus weakly barbed, other tarsal setae smooth. Leg IV (Figure 19B). Leg setation: Tr 1 (v”), Fe 2 (d, ev”), Ge 1 (d), Ti 5(1) (d, l’, l”, v’, v”, ϕp), Ta 7(1) (tc’, tc”, u’, u”, a”, a”, (vs, ω)). Sometimes seta d of genu IV absent. Solenidion ω 8 (8) baculiform; solenidion ϕp 22 (23) attenuate. Setae d of tibia long and smooth. Setae (tc) of tarsus smooth, other tarsal setae weakly barbed.

Male (Figures 20, 21) — Similar with female, but smaller. Length of idiosoma 345, width 235.

Idiosomal dorsum (Figure 20A) — Central hysterosomal plate with three pairs of setae. Lengths of dorsal setae: vi 62, ve 165, sci 25, sce 125, c1 62, c2 120, d1 76, d2 130, c1 76, c2 125, f1 135, h1 51, h2 97. Setae ps1,3 situated dorsally; ps1,2 short, spine-like.

Idiosomal venter (Figure 20B) — Aggenital setae situated on single plate. Only one right seta ag present in a single available specimen. Lengths of ventral setae: 1a 35, 1b 36, 1c 55, 2b 45, 2c 36, 3a 35, 3b 29, 3c 24, 4a 47, 4b 28, 4c 27, ag1 34, ag2 32, ag3 39, ps1 6, ps2 8, ps3 25. Aedeagus weakly sclerotized, difficult to discern.

Legs (Figure 21) — Leg setation as in female, ex-
cept presence of large male solenidia $\omega^3$ on tarsi I – IV.

**Immatures** unknown.

Type material — Female holotype, slide N° AK231015, Chile, Patagonia, vicinity of Punta Arenas, 53°38’028”S, 70°57’017”W, 23 October 2015, in *Sphagnum magellanicum* on swamp, coll. A.A. Khaustov. Paratypes: 1 female, same data; 1 male, same place, 13. November 2014, coll. V.A. Stolbov.

Etymology — The name of the new species is derived from Latin words *flexus* meaning to bend and *seta* and refers to thin and flexible dorsal setae.

Differential diagnosis — The new species is most similar to *S. ayyildizi* Dönel and Doğan, 2011, described from Turkey (Dönel and Doğan 2011), by smooth dorsal plates, three pairs of aggenital setae situated on single plate, presence of eyes. However, it differs from the latter by much longer dorsal body setae, absence of seta $d$ on genu III (vs. present in *S. ayyildizi*), presence of five setae on femur II (vs. four in *S. ayyildizi*), absence of seta $d$ on genu II (vs. present in *S. ayyildizi*).

**Stigmaeus patagoniensis** n. sp. (Figures 23-26)

**Description**

Female (Figures 23-26) — Length of idiosoma 455, width 300.

Idiosomal dorsum (Figure 23A) — Idiosoma oval, soft, mostly covered by smooth dorsal plates. Eyes present. Propodosomal plate with setae $vi$, $ve$ and $sci$; setae $sce$ situated on separate platelets. Postocular bodies large, weakly defined. Striae anteriorly to propodosomal plate without microtubercles. Setae $c_1$, $d_1$ and $e_1$ blunt-ended, other dorsal setae pointed. All dorsal setae smooth. Setae $vc$, $sc$, $c_2$, $e_2$ and $f_1$ very long and flexible. Ratio $ve/sci = 7.8$. Central hysterosomal plate with two pairs of setae. Suranal plate not divided, with two pairs of setae. Lengths of dorsal setae: $vi$ 64, $ve$ 150, $sci$ 19, $sce$ 135, $c_1$ 43, $c_2$ 135, $d_1$ 35, $d_2$ 125, $e_1$ 34, $e_2$ 135, $f_1$ 140, $h_1l_5$ 56, $h_2l_5$ 61.

Idiosomal venter (Figure 23B) — Ventral setae smooth or weakly barbed, pointed. Three pairs of aggenital setae; $ag_1$ situated on small platelets; $ag_2$, $ag_3$ on single platelet. One pair of genital setae. Endopodal plates without subcuticular reticulation. Lengths of ventral setae: $l_1a$ 36, $l_2b$ 35, $l_3c$ 65, $l_4b$ 52, $l_5c$ 33, $l_6a$ 31, $l_7b$ 29, $l_8c$ 23, $l_9a$ 36, $l_10b$ 23, $l_11c$ 25, $ag_1$ 27, $ag_2$ 25, $ag_3$ 36, $g_17$, $ps_1$ 70, $ps_2$ 35, $ps_3$ 24.

Gnathosoma (Figure 24) — Tibial claw large. Setae $l'$ of palpal tibia spine-like. All palpal setae pointed; setae of femur and genu weakly barbed; all setae of palptarsus smooth. Number of setae on palpal segments: Ti 0, Fe 3 ($d$, $l'$, $v'$), Ge 2 ($d$, $l'$), Ti 3 ($d$, $l'$, $l''$), Ta 8(1) (fused eupathidia $ul'$, $ul''$, $sul$, eupathidion acm, $ba$, $bp$, $ip$, 1 solenidion $\omega$). Palpal supracoaxial setae ($ep$) with thickened basal part and thin distal one. Chelicerae dorsally smooth. Rostrum of subcapitulum long. Subcapitular setae pointed; $n$ weakly barbed, other subcapitular setae smooth. Basal part of subcapitulum without reticulation. Lengths of subcapitular setae: $m$ 48, $n$ 26, $or_1$ 25, $or_2$ 28.

Legs (Figures 25, 26) — Empodial raylets weakly capitulate. Leg segments without reticulation. Leg I (Figure 25A). Coxae I posterodorsally with supracoaxial setae ($el$) thickened basally and thin in distal half. Leg setation: Tr 1 ($v'$), Fe 6 ($d$, $l'$, $l''$, $v'$, $v''$, $bv''$), Ge 4 ($d$, $l'$, $l''$, $k$), Ti 5(2) ($d$, $l'$, $l''$, $v'$, $v''$, $\varphi$, $\varphi$), Ta 13(1) ($p'$, $p''$, $tc'$, $tc''$, $ft'$, $ft''$, $u'$, $u''$, $a'$, $a''$, $pl'$, $pl''$, $vs$, $\omega$). Setae $d$ of tibia, ($p$), ($tc$) and ($ft$) of tarsus are eupathidia. Seta $k$ 8 needle-like. Solenidion $\omega$ 27, finger-shaped; solenidion $\varphi$ 31 attenuate. solenidion $\varphi$ 10 baculiform. Tarsal setae vs, ($pl$) weakly barbed, other tarsal setae smooth. Leg II (Figure 25B). Leg setation: Tr 1 ($v'$), Fe 5 ($d$, $l'$, $l''$, $v'$, $bv''$), Ge 4 ($d$, $l'$, $l''$, $k$), Ti 5(1) ($d$, $l'$, $l''$, $v'$, $v''$, $\varphi$), Ta 9(1) ($p'$, $tc'$, $tc''$, $u'$, $u''$, $a'$, $a''$, $pl'$, $pl''$, $vs$, $\omega$). Setae $p'$, $tc'$ of tarsus and $d$ of tibia are eupathidia. Solenidion $\omega$ 17 finger-shaped; solenidion $\varphi$ 25 attenuate. Tarsal setae $pl'$, vs and ($a$) weakly barbed, other tarsal setae smooth. Leg III (Figure 26A). Leg setation: Tr 2 ($l'$, $v'$), Fe 3 ($d$, $l'$, $v'$), Ge 1 ($d$), Ti 5(1) ($d$, $l'$, $l''$, $v''$, $\varphi$), Ta 7(1) ($tc'$, $tc''$, $u'$, $u''$, $a'$, $a''$, $pl'$, $vs$, $\omega$). Solenidion $\omega$ 8 baculiform; solenidion $\varphi$ 20 attenuate. Seta ($tc$) of tarsus smooth, other tarsal setae barbed. Leg IV (Figure 26B). Leg setation: Tr 1 ($v'$), Fe 2 ($d$, $ev'$), Ge 1 ($d$), Ti 5(1) ($d$, $l'$, $l''$, $v'$, $v''$, $ep$), Ta 7(1) ($tc'$, $tc''$, $u'$, $u''$, $a'$, $a''$, $vs$, $\omega$). Solenidion $\omega$ 8 baculiform; solenidion
Figure 25: *Stigmaeus patagoniensis* n. sp., female: A – leg I, B – leg II.
FIGURE 26: Stigmaeus patagoniensis n. sp., female: A – leg III, B – leg IV.


Khaustov A.A.

_\( \varphi \)_ 20 attenuate. Setae _d_ of tibia long and smooth. Setae (_vc_ of tarsus smooth, other tarsal setae weakly barbed.

**Male and immatures unknown.**

**Type material — Female holotype, slide AT260115/S, Chile, the Region of Magallanes, Nothofagus forest, in *Sphagnum* sp., 53°41'08.8"S, 70°58'24.2"W, 26 January 2015, coll. A.V. Tolstikov.**

**Etymology — The name of the new species refers to its distribution in Patagonia.**

**Differential diagnosis — The new species is most similar to *S. flexisetus* n. sp., by smooth dorsal plates, presence of eyes, long and flexible dorsal setae _ve, sce, c2_, _c2_ and _f1_. However, it differs from the latter by much shorter and blunt-ended setae _c1, d1_ and _e1_ (vs. much longer and pointed in *S. flexisetus*), presence of seta _d_ on genu III (vs. absent in *S. flexisetus*), presence of seta _d_ on genu II (vs. absent in *S. flexisetus*).**

**Genus Pseudostigmus Wood, 1967**

Type species: *Pseudostigmus collyerae* Wood, 1967, by original designation.

**Pseudostigmus magellani* n. sp.**

(Figures 27-30)

**Description**

**Female (Figures 27-30) — Length of idiosoma 480, width 260.**

Idiosomal dorsum (Figure 27A) — Idiosoma fusiform, soft, mostly striated. Eyes present. Propodosomal plate smooth, with three setae: _vi, ve_ and _sci_, with weak median propodosomal apodeme. Area anteriorly and anterolaterally to propodosomal plate with numerous microtubercles. All dorsal setae weakly barbed; setae _ve, sce_ and _c2_ pointed; other dorsal setae blunt-ended. Setae _c2_ situated dorsally. Ratio _ve/sci_ = 3. Suranal plate not divided, with two pairs of eyes. Other dorsal hysterosomal setae situated on platelets. Lengths of dorsal setae: _vi_ 35, _ve_ 105, _scii_ 35, _sce_ 80, _c1_ 32, _c2_ 105, _d1_ 33, _d2_ 43, _e1_ 42, _c2_ 36, _f1_ 55, _h1_ 46, _h2_ 55.

Idiosomal venter (Figure 27B) — Ventral setae smooth or weakly barbed; setae _ps1,3_ blunt-ended, other ventral setae pointed. Three pairs of aggenital setae; _ag1_ situated on soft cuticle; _ag2 – ag3_ on weakly defined platelet. One pair of genital setae. Cuticle posteriadi to gnathosomal base, posterolaterad to coxae IV and transverse striae between coxae II and III with microtubercles. Endopodal plates weakly developed. Coxal fields with small dimples. Lengths of ventral setae: _la_ 41, _lb_ 37, _lc_ 59, _lb’_ 75, _l_ 60, _la_ 67, _lb_ 32, _l_ 29, _la_ 43, _lb_ 27, _lc_ 19, _ag1_ 33, _ag2_ 47, _ag3_ 68, _g_ 77, _ps1_ 33, _ps2_ 28, _ps3_ 30.

Gnathosoma (Figure 28) — Tibial claw large. Setae _l_ of palpal tibia thin, seta-like. All palpal setae pointed; setae of femur, genu and _l”_ of tibia weakly barbed. Number of setae on palpal segments: _Tr_ 0, _Fe_ 3 (_d, l’, v”), _Ge_ 1 (_d), _Ti_ 3 (_d, l’, l”), _Ta_ 8(1) (fused eupathidia _ul’, ul”_, _sul_, eupathidia _acm, ba, bp, lp_, 1 solenidion _ω_. Tarsal eupathidia _ul’, ul”_ and _sul_ almost completely fused, without distinct distal prongs. Palpal supracoxal setae (_ep_) small, spine-like. Chelicerae dorsally with numerous small dimples. Rostrum of subcapitulum long. Subcapitular setae pointed; _n_ smooth and very long, other subcapitular setae barbed. Basal part of subcapitulum without reticulation. Lengths of subcapitular setae: _m_ 42, _n_ 115, _or1_ 24, _or2_ 23.

Legs (Figures 29 – 30) — Empodial raylets distinctly capitated. Leg segments without reticulation. Leg I (Figure 19A). Coxae I posterodorsally with small, spine-like leg supracoxal setae (_el_). Leg setation: _Tr_ 1 (_v”), _Fe_ 6 (_d, l’, l”, _v”, _b”), _Ge_ 4 (_d, l’, l”), _Ti_ 5(1) (_d, l’, l”, _v”, _v”, _ϕp_), _Ta_ 13(1) (_p’, _p”, _tc’, _tc”, _ft’, _ft”, _l’, _u”, _a”, _a”, _pl”, _pl”, _vs, _ω_). Setae _d_ of tibia, (_p), (_tc) and (_ft) of tarsus are eupathidia. Seta _k_ 5 needle-like. Solenidion _ω_ 22 finger-shaped; solenidion _ϕp_ 23 attenuate. Setae _pl_ and _vs_ of tarsus weakly barbed; other tarsal setae smooth. Leg II (Figure 29B). Leg setation: _Tr_ 1 (_v”), _Fe_ 4 (_d, l’, l”, _bv_”), _Ge_ 2 (_l’, _l”), _Ti_ 5(1) (_d, l’, l”, _v”, _v”, _ϕp_), _Ta_ 9(1) (_p’, _tc’, _tc”, _u”, _u”, _a”, _a”, _pl”, _vs, _ω_). Solenidion _ω_ 21 finger-shaped; solenidion _ϕp_ 19 attenuate. Seta _pl’_ and _vs_ weakly barbed, other tarsal setae smooth. Setae _d_ of tibia and _tc”_ of tarsus very long and smooth. Leg III (Figure 30A). Leg setation: _Tr_ 2 (_v”, _l”), _Fe_ 3 (_d, _l”, _ev”), _Ge_ 0, _Ti_ 5(1) (_d, l’, l”, _v”, _ϕp_), _Ta_ 7(1) (_tc’, _tc”, _u”, _u”, _a”, _a”, _vs, _ω_). Solenidion _ω_ 9 baculiform; solenidion _ϕp_ 15 attenuate. Setae _d_ of
Figure 28: Pseudotigmaeus magellani n. sp., female: A – gnathosoma dorsally, B – subcapitulum.
FIGURE 29: *Pseudostigmaeus magellani* n. sp., female: A – leg I, B – leg II.
Figure 30: *Pseudostignaeus magellani* n. sp., female: A – leg III, B – leg IV.
tibia and (tc) of tarsus very long and smooth. Seta vs and (a) of tarsus weakly barbed, other tarsal setae smooth. Leg IV (Figure 30B). Leg setation: Tr 1 (v′), Fe 2 (d, ev′), Ge 1 (d), Ti 5(1) (d, l′, l″, v′, v″, φp), Ta 7(1) (tc′, tc″, u′, u″, a′, a″, vs, ω). Solenidion ω 8 baculiform; solenidion φp 17 attenuate. Setae d of tibia and (ts) of tarsus very long and smooth. Seta vs and (a) of tarsus weakly barbed, other tarsal setae smooth.

Male and immatures unknown.

Type material — Female holotype, slide AT260115/S1, Chile, The Region of Magallanes, Nothofagus forest, in Sphagnum sp., 53°41′08.8″S, 70°58′24.2″W, 26 January 2015, coll. A.V. Tolstikov.

Etymology — The new species is named after Ferdinand Magellan, the first European explorer who sailed past southernmost tip of South America and discovered Patagonia in 1520.

Differential diagnosis — The new species differs from all known Pseudostigmaeus species by the absence of seta d of genu III and l″ of palpal genu (vs. present in all known species).

Remarks — The genus Pseudostigmaeus Wood, 1967 includes four species, which were described from New Zealand (Fan and Zhang 2005). This is the first report of the genus Pseudostigmaeus from South America.

Genus Eryngiopus Summers, 1964

Type species: Eryngiopus gracilis Summers, 1964, by original designation.

Eryngiopus techuelche n. sp. (Figures 31-35)

Description

Female (Figures 31-35) — Length of idiosoma 365, width 185.

Idiosomal dorsum (Figures 31A, 35A, B) — Idiosoma fusiform, soft, mostly striated. Eyes present. Propodosomal plate divided into two separated longitudinally aligned parts bearing setae vi and ve (Figure 35B). All dorsal setae uniform, blunt-ended and weakly barbed. Setae c2 situated dorsally. Suranal plate divided, with two pairs of setae (Figure 35A). A pair of platelets situated between setae c1 and d1; another pair of very small platelets situated anteriorly to setae c1. Lengths of dorsal setae: vi 17, ve 26, sci 26, sce 31, c1 27, c2 30, d1 22, d2 24, c1 16, c2 16, f1 23, h1 29, h2 33.

Idiosomal venter (Figure 31B) — Ventral setae smooth and pointed, except weakly barbed and blunt-ended ps1,2. Two pairs of aggenital setae; ag1 situated on soft cuticle; ag2 on weakly defined platelet. Another small platelet situated posterolaterally to seta ag2. One pair of genital setae. Cuticle posteriorid to gnathosomal base with microtubercles. Setae 1a, 3a and 4a very long. Coxal fields IV with one pair of setae. Lengths of ventral setae: 1a 81, 1b 20, 1c 22, 2b 27, 3a 67, 3b 25, 3c 27, 4a 81, 4b 24, ag1 22, ag2 28, g 30, ps1 19, ps2 17, ps3 23.

Gnathosoma (Figure 32) — Tibial claw large. Setae l′ of palpal tibia thin, seta-like. All palpal setae pointed and smooth. Number of setae on palpal segments: Tr 0, Fe 3 (d, l′, v′), Ge 1 (d), Ti 3 (d, l′, l″), Ta 8(1) (fused eupathidia ul′, ul″, sul, eupathidion acm, ba, bp, lp, 1 solenidion ω). Setae v′ of femur very short (Figure 35C). Palpal supracoxal setae (ep) small, thick, with distinctly rounded tip. Chelicerae dorsally smooth (Figure 35D). Rostrum of subcapitulum long. Subcapitular setae pointed; and smooth. Setae n very long. Basal part of subcapitulum without reticulation (Figure 35C). Lengths of subcapitular setae: m 26, n 70, or1 14, or2 15.

Legs (Figures 33, 34) — Empodial raylets distinctly capitate. Leg segments without reticulation. Leg I (Figure 33A). Coxae I postero-dorsally with small, thick, with distinctly rounded tip leg supracoxal setae (el). Leg setation: Tr 1 (v′), Fe 4 (d, l′, l″, bo′), Ge 4 (d, l′, l″, k), Ti 5(1) (d, l′, l″, v′, v″, φp), Ta 13(1) (p′, p″, tc′, tc″, fl′, ft″, u′, u″, a′, a″, pl′, pl″, vs, ω). Setae d of tibia, (p) and (tc) of tarsus are eupathidia. Seta k 4 needle-like. Solenidion ω short 8, finger-shaped; solenidion φp 12 uniformly thin. All leg setae smooth. Leg II (Figure 33B). Leg setation: Tr 1 (v′), Fe 4 (d, l′, l″, bo′), Ge 1 (l′), Ti 5(1) (d, l′, l″, v′, v″, φp), Ta 9(1) (p′, tc′, tc″, fl′, ft″, u′, u″, a′, a″, pl′, pl″, vs, ω). Solenidion ω 6 finger-shaped; solenidion φp 10 uniformly thin. All leg setae smooth. Setae d of tibia and tc″ of tarsus long. Leg III (Figure 34A). Leg setation: Tr 1 (v′), Fe 2 (d, ev′), Ge 0, Ti 5(1) (d, l′, l″, v′, v″,
Figure 31: Eryngiopus techuelche n. sp., female: A – idiosomal dorsum, B – idiosomal venter.
Figure 32: Eryngiopus techuelche n. sp., female: A – gnathosoma dorsally, B – subcapitulum.
Figure 33: Eryngiopus techuelche n. sp., female: A – leg I, B – leg II.
FIGURE 34: *Eryngiopus techuelche* n. sp., female: A – leg III, B – leg IV.
Figure 35: DIC micrographs of *Eryngiopus techuelche* n. sp., female: A – opisthosoma dorsally, B – prodorsum, C – gnathosoma ventrally, D – gnathosoma dorsally.
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