

FIRST RECORD OF *PANTELOZETES* (ACARI, ORIBATIDA, THYRISOMIDAE) FROM THE NEOTROPICAL REGION, WITH DESCRIPTION OF A NEW SPECIES FROM SOUTHERN CHILE

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ABSTRACT: The oribatid mite genus *Pantelozetes* (Oribatida, Thyrisomidae) is recorded in the Neotropical region for the first time. A new species, *Pantelozetes tierradelfuegoensis* Ermilov sp. n., is described from moss *Sphagnum magellanicum* on swamp of Tierra del Fuego, Southern Chile. It is similar to *Pantelozetes clavatus* (Jacot, 1937) from the USA, but differs by the absence of dorso-lateral ridges on prodorsum, the presence of barbed and thickened notogastral setae, and by the difference of dorsal notogastral setae in length.

KEY WORDS: Oribatid mite, *Pantelozetes*, systematics, morphology, *Sphagnum*, Chile.

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INTRODUCTION

Pantelozetes (= *Montizetes* Kunst, 1971; = *Oribellopsis* Kunst, 1971; = *Gemmazetes* Fujikawa, 1979) is a genus of oribatid mites (Acari, Oribatida, Thyrisomidae*) that was proposed by Grandjean (1953) with *Xenillus paolii* Oudemans, 1913 as type species. At present, it comprises 21 species and one subspecies, having a Holarctic distribution collectively, except *Pantelozetes paolii* (Oudemans, 1913), which is registered also in Java (Subías 2004, updated 2016).

During studies of oribatid mites from Southern Chile**, we discovered one new species of *Pantelozetes*. The main goal of the paper is to describe and illustrate it under the name *Pantelozetes tierradelfuegoensis* Ermilov sp. n. This species is the first representative of *Pantelozetes* recorded in the Neotropical region.

The main morphological characters of *Pantelozetes* were summarized by Ermilov *et al.* (2015). The identification keys to selected species of the genus have been presented earlier by Fujikawa (1979), Rakhimbaeva (1995), Bayartogtokh (2003, 2010), and Weigmann (2006).

MATERIAL AND METHODS

Material examined. Specimens of *Pantelozetes tierradelfuegoensis* Ermilov sp. n. (holotype: female, eight paratypes: six females and two males) were collected: Southern Chile, 54°03'627"S, 068°54'527"W, Tierra del Fuego, swamp surrounded with trees *Nothofagus* sp. on

a mountain slope, moss *Sphagnum magellanicum*, extracted by Berlese funnels, 3.XI.2015 (A.A. Khaustov).

Methods. Specimens were mounted in lactic acid on temporary cavity slides for measurement and illustration. The body length was measured in lateral view, from the tip of the rostrum to the posterior edge of the ventral plate. Notogastral width refers to the maximum width in dorsal aspect. Lengths of body setae were measured in lateral aspect. All body measurements are presented in micrometers. Formulas for leg setation are given in parentheses according to the sequence trochanter–femur–genu–tibia–tarsus (famulus included). Formulas for leg solenidia are given in square brackets according to the sequence genu–tibia–tarsus.

Morphological terminology used in this paper follows that of F. Grandjean: see Travé and Vachon (1975) for references, Norton (1977) for leg setal nomenclature, and Norton and Behan–Pelletier (2009) for overview.

Drawings were made with a camera lucida using a Carl Zeiss transmission light microscope “Axioskop-2 Plus”. Images were obtained with an AxioCam ICc3 camera using a Carl Zeiss transmission light microscope “Axio Lab.A1”.

DESCRIPTION

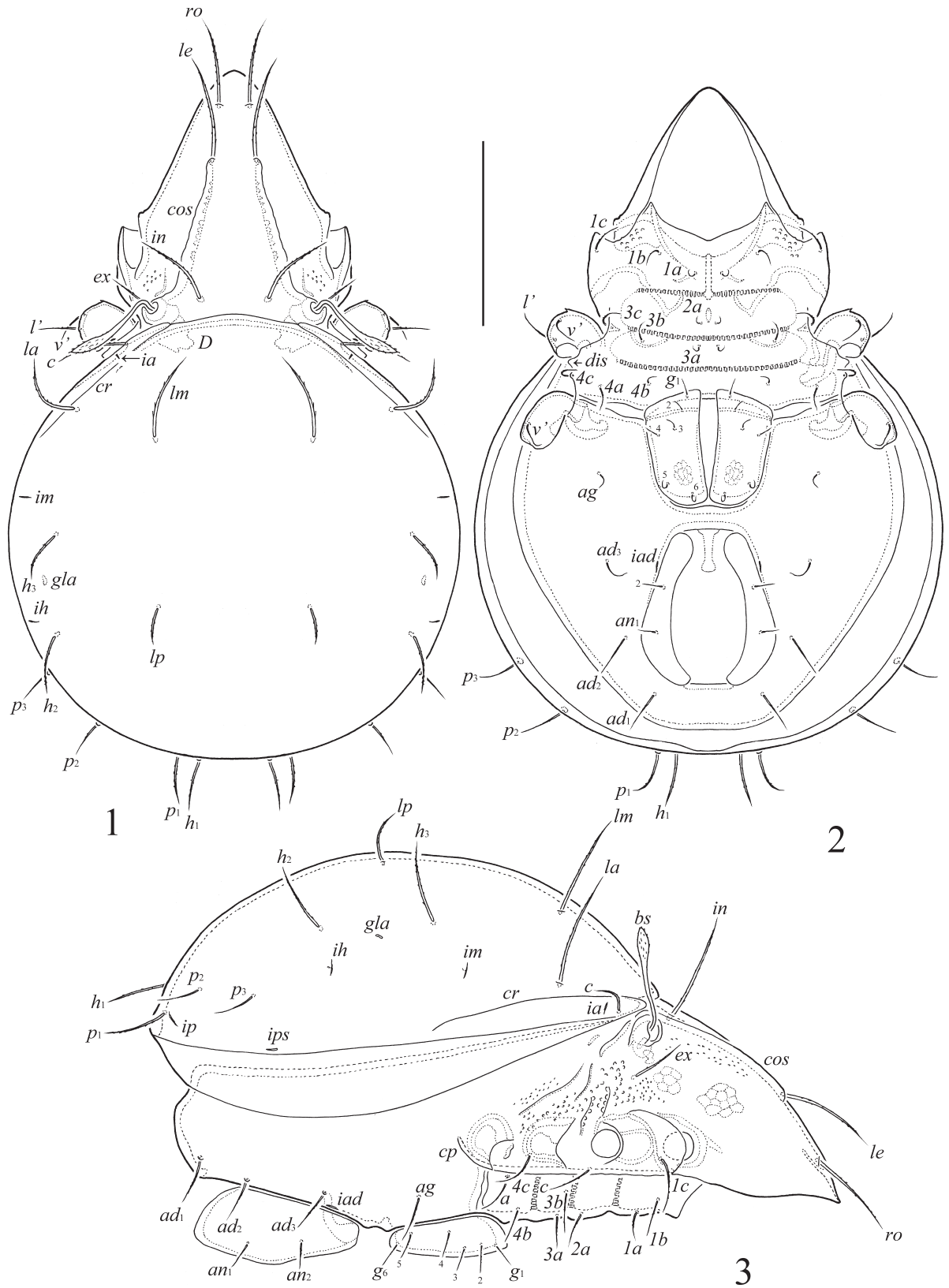
Pantelozetes tierradelfuegoensis Ermilov sp. n.

Figs 1–20

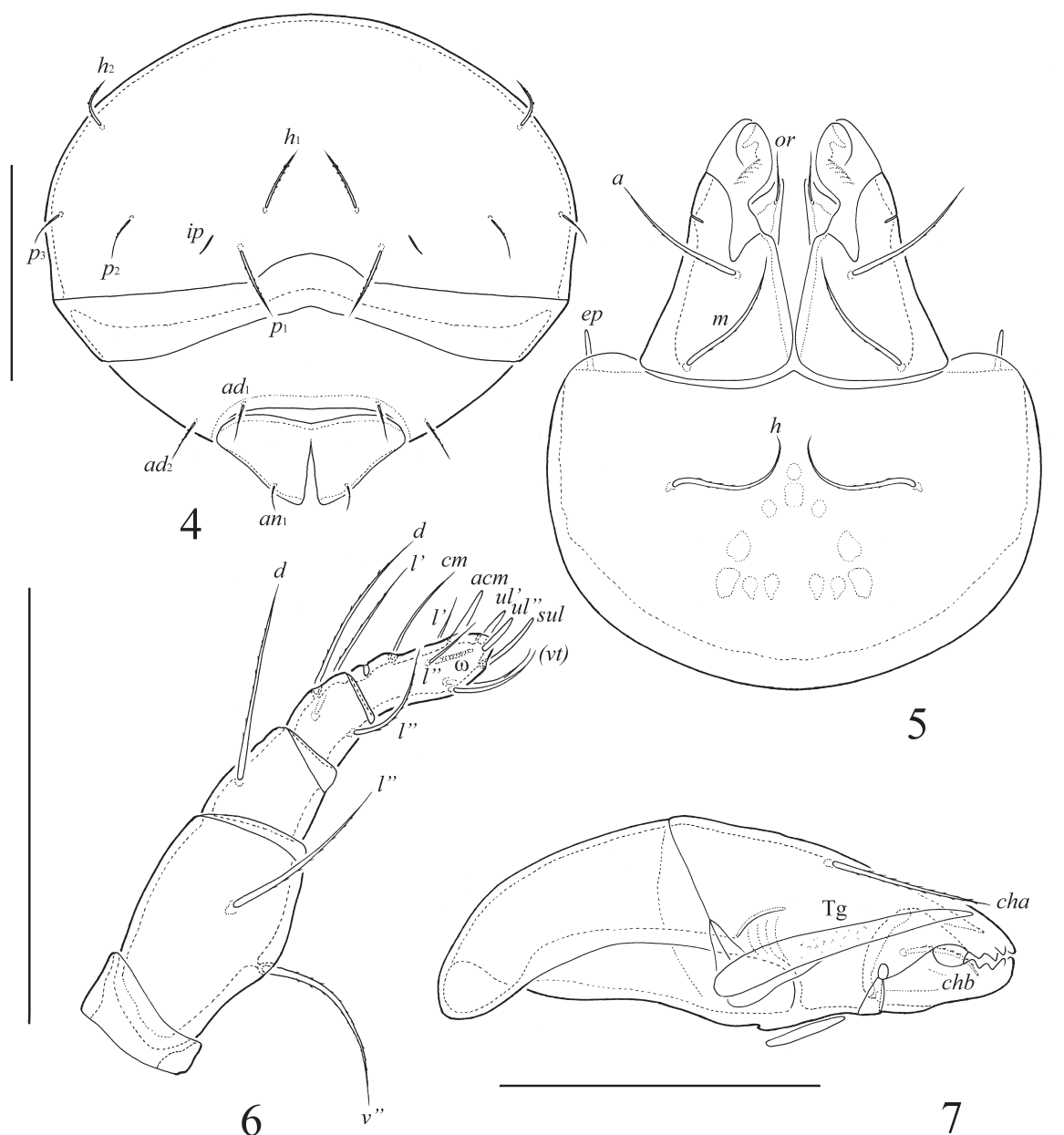
Diagnosis. Body size: 381–415 × 215–265. Rostrum rounded. Costulae longer than half of prodorsum length. Rostral and lamellar setae setiform, barbed. Interlamellar setae erect, barbed.

* See Schatz *et al.* (2011).

** This work is a part of the continuing study of the Chilean oribatid mite fauna (Ermilov and Khaustov 2015; Ermilov and Weigmann 2015; Ermilov 2016).



Figs 1–3. *Pantelozetes tierradelfuegoensis* Ermilov sp. n., adult: 1—dorsal view (not shown: legs except trochanters III); 2—ventral view (not shown: gnathosoma and legs except trochanters III and IV); 3—lateral view (not shown: gnathosoma and legs). Scale bar 100 μ m.



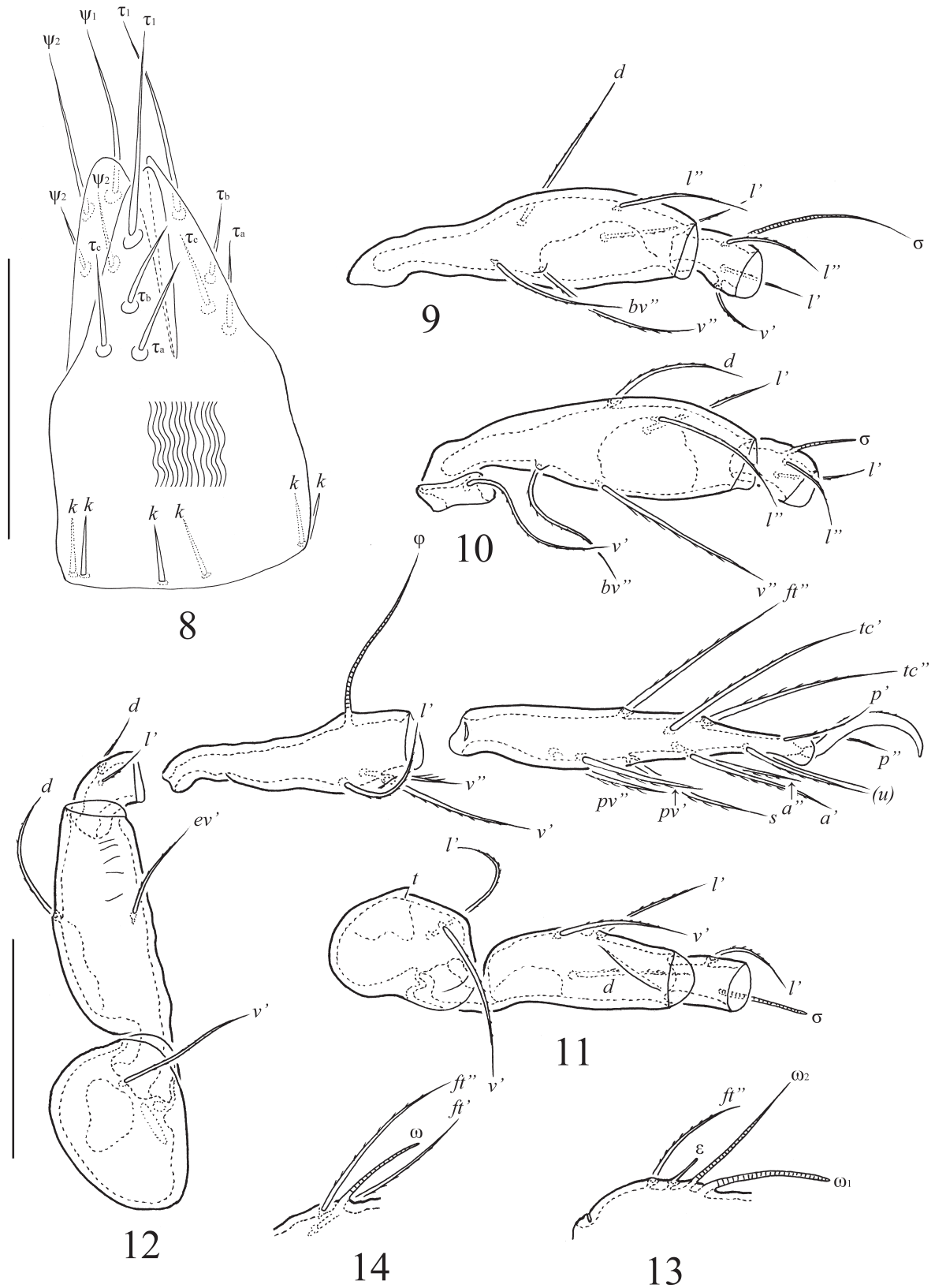
Figs 4–7. *Pantelozetes tierradelfuegoensis* Ermilov sp. n., adult: 4—posterior view; 5—subcapitulum, ventral view; 6—palp, right, antiaxial view; 7—chelicera, left, paraxial view. Scale bars 100 μ m (4), 50 μ m (5–7).

Bothridial setae fusiform, lanceolate or clavate, barbed. Prodorsum without dorso-lateral ridges. Notogastral setae thickened, barbed, la and lm longest, lp , p_2 and p_3 shortest. Cristae long. One pair of adoral setae. Sternal apodeme short. Epimeral and ano-genital setae thin, barbed. Leg tarsi with one claw.

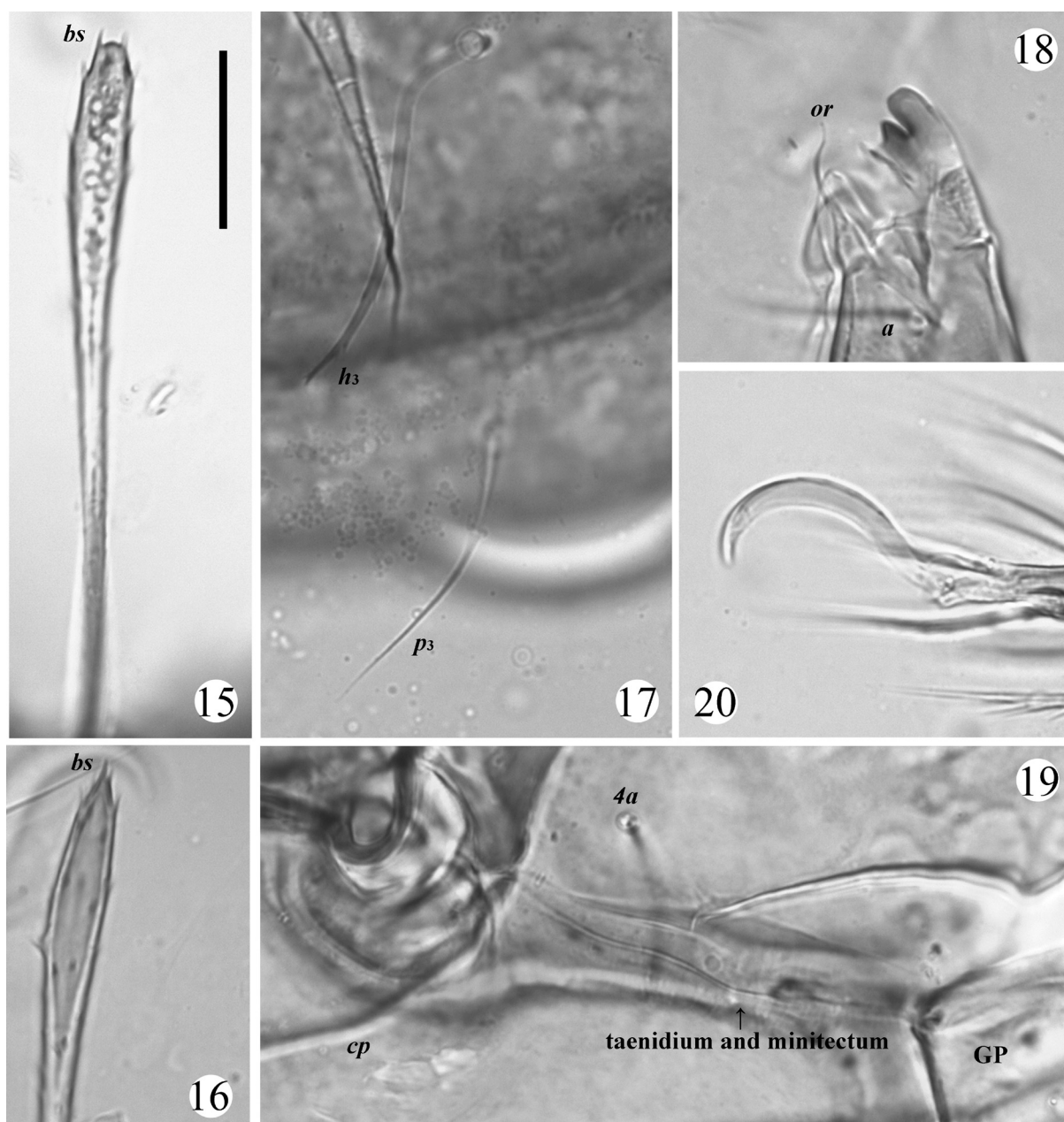
Description. *Measurements.* Body length: 415 (holotype: female), 381–415 (eight paratypes: six females and two males); notogaster width: 249 (holotype), 215–265 (eight paratypes). No clear difference between females and males.

Integument (Figs 1, 3). Body color light brown to brown. Body surface, subcapitular mentum and genae, genital and anal plates punctate, that is visible only under high magnification ($\times 1000$) in dissected specimens. Lateral sides of prodorsum (between acetabula and bothridia, and also laterally to lamellae) with tuberculate cerotegument (diameter of tubercles up to 4).

Prodorsum (Figs 1, 3, 15, 16). Rostrum rounded, without teeth. Costulae (cos) well developed, longer than half of prodorsum length. Rostral (ro , 53–57) and lamellar (le , 57–61) setae setiform, barbed, ro inserted dorsally, le —on the lamellar



Figs 8–14. *Pantelozetes tierradelfuegoensis* Ermilov sp. n., adult: 8—ovipositor; 9—femur and genu of leg I, right, antiaxial view; 10—trochanter, femur and genu of leg II, right, antiaxial view; 11—trochanter, femur and genu of leg III, left, ventral view; 12—leg IV, left, antiaxial view; 13—solenidia, famulus and seta ft'' on tarsus of leg I, right, antiaxial view; 14—solenidia and seta ft'' on tarsus of leg II, right, antiaxial view. Scale bars 50 μ m, the following groups to same scale: 8; 9–14.



Figs 15–20. *Pantelozetes tierradelfuegoensis* Ermilov sp. n., dissected adult, microscope images: 15—bothridial seta; 16—bothridial head; 17—notogastral setae h_3 and p_3 ; 18—rutellum, lip with adoral seta and anterior part of gena, right, ventral view; 19—taenidium and minitectum; 20—claw of leg III, right, antiaxial view. Scale bar 20 μ m.

ends. Interlamellar setae (*in*, 65–69) slightly thicker than rostral and lamellar setae, erect, barbed. Exobothridial setae (*ex*, 36–41) thin, setiform, barbed. Bothridial setae (*bs*, 69–77) fusiform, lanceolate or clavate, with long, slightly barbed stalk and head shorter, rounded or pointed distally, barbed. Bothridia with antero-lateral incision. Interbothridial region without distinct muscle sigillae. Dorsolateral ridges absent in all specimens.

Notogaster (Figs 1, 3, 4, 17). Anterior margin straight or slightly convex medially. Posterior margin broadly or narrowly (triangular-form)

rounded. One pair of humeral tubercles present, small. Dorsophragmata (*D*) well visible. Ten pairs of notogastral setae thickened, barbed, *la* and *lm* (57–65) longer than *c*, h_1 – h_3 , p_1 (36–45) and *lp*, p_2 , p_3 (26–32), p_2 and p_3 thinnest. Cristae (*cr*) long, reach the level of insertions notogastral setae *lp*. Circumgastric scissure poorly visible. All lyrifissures (*ia*, *im*, *ip*, *ips*, *ih*) distinct. Opisthonotal gland openings (*gla*) located posterior to h_3 .

Gnathosoma (Figs 5–7, 18). Subcapitulum longer than wide (94–102 \times 73–77). Subcapitular setae (*a*, *m*, *h*) similar in length (24–28), setiform,

slightly barbed. One pair of adoral setae (*or*, 8–10) present, thin, slightly barbed. Palps (length 65–69) with setation 0–2–1–3–9(+ ω). Solenidion short, thickened, blunted, pressed to the surface of palptarsi. Postpalpal setae (*ep*, 10) spiniform. Chelicerae (length 94–102) with two setiform, barbed setae; *cha* (26–32) straight, longer than curved *chb* (16–20). Trägårdh's organ (Tg) long, tapered.

Epimeral and lateral podosomal regions (Figs 2, 4, 8, 19). Epimere I and apodemes 2 separated medially by short sternal apodeme. Epimeres II, III and IV and apodemes III and sejugal apodemes fused medially. All apodemes without tubercle-like or bridge-like structures. Epimeral setal formula: 3–1–3–3. All setae thin, barbed, *1a*, *2a* and *3a* (20) shorter than *1b*, *3b*, *4a*, *4b* (28–36) and *1c*, *3c*, *4c* (36–41). Pedotecta I represented by small lamina. Discidia (*dis*) tubercle-like. Taenidia and minitecta well visible (Fig. 19). Circumpedal carinae (*cp*) short, directed to acetabula IV.

Anogenital region (Figs 2–4, 8). Six pairs of genital (g_1 – g_6 , 16), one pair of aggenital (*ag*, 28–32), two pairs of anal (an_1 , an_2 , 16) and three pairs of adanal (ad_1 – ad_3 , 28–32) setae setiform, slightly barbed. Adanal lyrifissures (*iad*) distinct, located parallel and near to anal aperture. Ovipositor elongated (77 × 45), blades (36) shorter than distal section (beyond middle fold) (41). All setae erect, smooth; $\psi_1 \approx \tau_1$ (36) much longer than $\psi_2 \approx \tau_a \approx \tau_b \approx \tau_c$ (18–20), six coronal setae (*k*, 12) thin.

Legs (Figs 9–14, 20). Monodactylous. Claw of each leg relatively thin, barbed on dorsal side. Trochanters III with one small antiaxial tooth (*t*). Formulae of leg setation and solenidia: I (1–5–3–4–18) [1–2–2], II (1–5–2–4–15) [1–1–1], III (2–3–1–3–15) [1–1–0], IV (1–2–2–3–12) [0–1–0]; homology of setae and solenidia indicated in Table 1. Famulus (ϵ) short, straight, weakly dilated distally, blunted. Solenidia ω_1 on tarsi I, ω on tarsi II and σ on genua II and III thickened, blunted; others solenidia thin, setiform.

Type deposition. The holotype is deposited in the collection of the Senckenberg Museum, Görlitz, Germany; eight paratypes are deposited in the collection of the Tyumen State University Museum of Zoology, Tyumen, Russia.

Etymology. The specific name “*tierradelfuegoensis*” refers to Tierra del Fuego, an archipelago off the southernmost tip of the South American mainland, across the Strait of Magellan, where the new species was discovered.

Remarks. *Pantelozetes tierradelfuegoensis* Ermilov sp. n. is morphologically most similar to

Pantelozetes clavatus (Jacot, 1937) from the USA (see Jacot 1937; including Norton's data*) in having rounded rostrum, fusiform or lanceolate bothridial setae, long and erect interlamellar setae and monodactylous legs, however differs by the absence of dorso-lateral ridges on prodorsum (vs. well-developed), the presence of barbed and thickened notogastral setae (vs. smooth, flexible, attenuate), and by the difference of dorsal notogastral setae in length, *la* and *lm* longest, *lp* shortest (vs. dorsal notogastral setae similar in length).

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* Main morphological traits of *Pantelozetes clavatus* (Jacot, 1937) were kindly studied by Prof. Dr. Roy A. Norton (his study is based on specimen from personal collection).

Table 1.

Leg setation and solenidia of *Pantelozetes tierradelfuegoensis* Ermilov sp. n.

Leg	Tr	Fe	Ge	Ti	Ta
I	v'	d, (l), bv'', v''	(l), v', σ	(l), (v), φ ₁ , φ ₂	(ft), (tc), (it), (p), (u), (a), s, (pv), (pl), ε, ω ₁ , ω ₂
II	v'	d, (l), bv'', v''	(l), σ	(l), (v), φ	(ft), (tc), (it), (p), (u), (a), s, (pv), ω
III	l', v'	d, l', ev'	l', σ	l', (v), φ	(ft), (tc), (it), (p), (u), (a), s, (pv)
IV	v'	d, ev'	d, l'	l', (v), φ	ft'', (tc), (p), (u), (a), s, (pv)

Roman letters refer to normal setae, Greek letters refer to solenidia (except ε—famulus). One apostrophe (') marks setae on anterior and double apostrophe (")—setae on posterior side of the given leg segment. Parentheses refer to a pair of setae. Tr—trochanter, Fe—femur, Ge—genu, Ti—Tibia, Ta—tarsus.

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