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NEW FAUNISTIC AND TAXONOMIC DATA ON ORIBATID MITES (ACARI, ORIBATIDA) FROM GUATEMALA

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The present study is based on oribatid mite material collected from four locations in Guatemala. A list of 48 species belonging to 38 genera and 28 families is presented. Of these, 39 species, 26 genera and 13 families are recorded from Guatemala for the first time; and two species, one genus and one family are recorded from the Neotropical region for the first time. In addition, three new species are described: *Hermanniella oblonga* Ermilov sp. n. (Hermanniellidae), *Protoribates silvaticus* Ermilov sp. n. (Haplozetidae) and *Pergalumna guatemalaensis* Ermilov sp. n. (Galumnidae).

Keywords: Neotropical fauna, taxonomy, new record, new species, *Hermanniella*, *Protoribates*, *Pergalumna*

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The oribatid mites (Acari, Oribatida) of Guatemala are poorly known (e.g., Willmann, 1930; Hammer, 1969; Mahunka, 1978, 1983; Behan-Pelletier, Ryabinin, 1991). The present work is based on oribatid materials collected from four locations in Guatemala in 1986. The primary goal of the paper is to present a list of all identified taxa, including new records. The secondary goal is to describe three new species belonging to the genera *Hermanniella* Berlese 1908 (family Hermanniellidae), *Protoribates* Berlese 1908 (family Haplozetidae) and *Pergalumna* Grandjean 1936 (family Galumnidae). All of the above species belong to the nominate subgenera.

The genus *Hermanniella* comprises 40 species and one subspecies, which have a cosmopolitan distribution except the Antarctic region (Subías, 2022, online version 2023). The main generic traits have been presented by Grandjean (1931), Sitnikova (1973) and Weigmann (2006).

The genus *Protoribates* comprises 95 species and three subspecies, which have a cosmopolitan distribution except the Antarctic region (Subías et al., 2021; Subías, 2022, online version 2023). The generic diagnosis has been revised by Subías et al. (2021).

The genus *Pergalumna* comprises 186 species and 14 subspecies, which have a cosmopolitan distribution except the Antarctic region (Subías, 2022, online version 2023). The generic diagnosis was revised by Ermilov and Klimov (2017).

Before our research, *Pergalumna* and *Protoribates* had never been registered in Guatemala, and only one unidentified *Hermanniella* species has been recorded from Guatemala (Hammer, 1969).

MATERIALS AND METHODS

S p e c i m e n s. Samples containing oribatid mites were collected from four locations in Guatemala: 1–6.3 km NE Highway, sifting dry leaf litter, 8.VII.1986 (J.M. Campbell); 2 – San Lorenzo, sifted mushroom piles, 18.VIII.1986 (J.M. Campbell); 3 – Zacapa Department, Sierra de Las Minas, San Lorenzo, 1700 m a.s.l., lichens and moss mats on rocks, 7–10.XI.1986 (E.E. Lindquist); 4 – Zacapa Department, Sierra de Las Minas, 9 km N. San Lorenzo, 2100 m a.s.l., damp litter in cloud forest, 17.XI.1986 (E.E. Lindquist).

O b s e r v a t i o n a n d d o c u m e n t a t i o n. For measurement and illustration, specimens were mounted in lactic acid on temporary cavity slides. All measurements are in micrometers (μm); body length was measured in lateral view, from the tip of the rostrum to the posterior edge of the notogaster; notogastral width refers to the maximum width in dorsal aspect; setal lengths were measured perpendicular to their long axes, accounting for curvature. Formulas for leg solenidia are given in square brackets according to the sequence genu-tibia-tarsus. Drawings were made with a camera lucida using a Leica DM 2500 light microscope.

T e r m i n o l o g y. The morphological terminology used in this paper mostly follows the papers on Hermanniellidae, Haplozetidae and Galumnidae (e.g., Grandjean, 1936, 1956, 1962). Also, see Norton (1977)

for leg setal notation, as well as Norton and Behan-Pelletier (2009) and Ermilov and Klimov (2017) for overview.

Abbreviations and notations. *Prodorsum*: *rc* = rostral carina; *lam* = lamella; *slam* = sublamella; *L* = lamellar line; *S* = sublamellar line; *N* = prodorsal leg niche; *Al* = sublamellar porose area; *tu* = tutorium; *E*, *T* = lateral ridges; *ro*, *le*, *in*, *bs*, *ex* = rostral, lamellar, interlamellar, bothridial, and exobothridial setae, respectively; *Ad* = dorsosejugal porose area; *D* = dorsophragma; *P* = pleurophragma. *Notogaster*: *Aa*, *A1–A3* = porose areas; *c*, *d*, *la, e*, *lm, f*, *lp*, *h*, *p* = setae; *ES* = exuvial scalp; *cE*, *dE, eE, fE*, *hE* = exuvial setae; *ia*, *im*, *ip*, *ih*, *ips* = lyrifissures; *gla* = opisthonotal gland opening. *Gnathosoma*: *a*, *m*, *h* = subcapitular setae; *or* = adoral seta; *d*, *l*, *sup*, *inf*, *cm*, *ul*, *su*, *vt*, *lt* = palp setae; ω = palp solenidion; *as* = axillary saccule; *cha*, *chb* = cheliceral setae; *Tg* = Trägårdh's organ. *Epimeral and lateral podosomal regions*: *1a–c*, *2a*, *3a–c*, *4a–c* = epimeral setae; *PdI*, *PdII* = pedotecta I, II, respectively; *dis* = discidium; *cir* = circumpedal carina; *z* = aperture of supracoxal gland; *sac* = saccule. *Anogenital region*: *g*, *ag*, *an*, *ad* = genital, aggenital, anal, and adanal setae, respectively; *iad* = adanal lyrifissure; *Ap* = postanal porose area; *Amar* = marginal porose area; *po* = preanal organ. *Legs*: *Tr*, *Fe*, *Ge*, *Ti*, *Ta* = trochanter, femur, genu, tibia, tarsus, respectively; *pa* = porose area; ω, φ, σ = solenidia; ε = famulus; *d*, *l*, *v*, *bv*, *ev*, *ft*, *tc*, *it*, *p*, *u*, *a*, *s*, *pv*, *pl* = setae.

LIST OF IDENTIFIED TAXA

Distribution data are mostly from Subías (2022, online version 2023). Ptyctimous mites, representatives of Damaeidae, as well as unidentified species are not listed.

Brachychthoniidae

Liochthonius fimbriatissimus Hammer 1962: locality 4 (1 ex.). Distribution: Australasian, Neotropical, Antarctic. New record of the family, genus and species in Guatemala.

Sphaerochthoniidae

Sphaerochthonius splendidus (Berlese 1904): locality 1 (7 ex.). Distribution: Tropical, Subtropical. New record of the species in Guatemala.

Trhypochthoniidae

Trhypochthonius tectorum (Berlese 1896): locality 3 (13 ex.). Distribution: Semicosmopolitan. New record of the family, genus and species in Guatemala.

Malaconothridae

Malaconothrus aureopunctatus Hammer 1979: locality 4 (2 ex.). Distribution: Oriental, Brazil, Ethiopia. New record of the family, genus and species in Guatemala.

Nothridae

Nothrus anauniensis Canestrini et Fanzago 1877: locality 3 (1 ex.). Distribution: Cosmopolitan. New record of the species in Guatemala.

Nothrus willmanni Mahunka 1983: locality 4 (7 ex.). Distribution: Neotropical.

Nanhermanniidae

Nanhermannia elegantissima Hammer 1958: locality 4 (4 ex.). Distribution: Neotropical, Subantarctic. New record of the species in Guatemala.

Hermanniellidae

Hermanniella oblonga sp. n.: locality 4 (7 ex.).

Pheroliodidae

Pheroliodes wehnckei (Willmann 1930): locality 3 (3 ex.). Distribution: Neotropical.

Gymnodamaeidae

Jacotella ornata (Balogh et Csiszár 1963): locality 3 (2 ex.). Distribution: Neotropical, India. New record of the family, genus and species in Guatemala.

Cepheusidae

Oribatodes mirabilis Banks 1895: locality 4 (1 ex.). Distribution: northern Nearctic. New record of the family and genus in Guatemala; new record of the species in the Neotropical region.

Polypterozetidae

Polypterozetes cherubin Berlese 1916: locality 4 (9 ex.). Distribution: Italy. New record of the family, genus and species in the Neotropical region.

Basilobelbidae

Basilobelba werneri Mahunka 1982: locality 4 (18 ex.). Distribution: northern Neotropical. New record of the family, genus and species in Guatemala.

Peloppiidae

Ceratorchestes baloghi Mahunka 1983: locality 1 (1 ex.). Distribution: northern Neotropical. New record of the family, genus and species in Guatemala.

Metrioppia serrata (Sellnick 1931): locality 4 (14 ex.). Distribution: Mexico, U.S.A. (Virginia). New record of the genus and species in Guatemala.

Eremulidae

Eremulus brasiliensis Pérez-Íñigo et Baggio 1985: locality 1 (2 ex.), locality 3 (5 ex.), locality 4 (9 ex.). Distribution: Neotropical. New record of the family, genus and species in Guatemala.

Damaeolidae

Fosseremus laciniatus (Berlese 1905): locality 4 (1 ex.). Distribution: Cosmopolitan. New record of the family, genus and species in Guatemala.

Oppiidae

Oppiella nova (Oudemans 1902): locality 1 (1 ex.), locality 4 (2 ex.). Distribution: Cosmopolitan. New record of the genus and species in Guatemala.

Pararamusella cf. *disjuncta* Mahunka et Palacios-Vargas 1998: locality 4 (16 ex.). Distribution: Mexico. New record of the genus and species in Guatemala. *Remarks*. Our specimens are similar to those from the original description (Mahunka, Palacios-Vargas, 1998), but they have narrowed (nearly pointed) rostrum.

Pseudoamerioppia barrancensis (Hammer 1961): locality 1 (18 ex.). Distribution: Neotropical, Philippines, western Africa, Canary Islands. New record of the genus and species in Guatemala.

Ramusella (*Ramusella*) *chulumaniensis* (Hammer 1958): locality 4 (1 ex.). Distribution: Neotropical, Oriental. New record of the genus and species in Guatemala.

Ramusella (*Insculptoppia*) *claudelionsi* (Călugăr et Vasiliu 1983): locality 4 (1 ex.). Distribution: Cuba. New record of the species in Guatemala.

Wallworkoppia cervifer (Mahunka 1983): locality 4 (1 ex.). Distribution: northern Neotropical. New record of the genus and species in Guatemala.

Sternoppiidae

Sternoppia incisa Balogh et Mahunka 1977: locality 4 (5 ex.). Distribution: Neotropical. New record of the species in Guatemala.

Suctobelbidae

Suctobelbella (*Suctobelbella*) *subcornigera maculata* Shtanchaeva et Subías 2009: locality 4 (1 ex.). Distribution: Holarctic, Nearctic, Argentina. New record of the family, genus and species in Guatemala.

Suctobelbella (*Flagrosuctobelba*) *forsslundi* (Strenzke 1950): locality 4 (3 ex.). Distribution: Palaearctic, Cuba. New record of the species in Guatemala.

Carabodidae

Carabodes (*Carabodes*) *guatemalaensis* Ermilov 2023: locality 1 (3 ex.), locality 4 (3 ex.). Distribution: Guatemala.

Carabodes (*Klapperiches*) *lindquisti* Ermilov 2023: locality 3 (9 ex.). Distribution: Guatemala.

Carabodes (*Klapperiches*) *venezolanus* Subías et Arillo 2004: locality 3 (17 ex.). Distribution: Neotropical. New record of the species in Guatemala.

Tectocepheidae

Tectocepheus sarekensis Trägårdh 1910: locality 1 (2 ex.), locality 4 (4 ex.). Distribution: Cosmopolitan. New record of the species in Guatemala.

Tectocepheus velatus (Michael 1880): locality 2 (1 ex.), locality 4 (1 ex.). Distribution: Cosmopolitan. New record of the species in Guatemala.

Microtegeidae

Microtegeus borhidii Balogh et Mahunka 1974: locality 1 (1 ex.), locality 4 (2 ex.). Distribution: Neotropical, Oriental, Japan. New record of the family, genus and species in Guatemala.

Oribatellidae

Oribatella dechambrieri Mahunka 1983: locality 4 (6 ex.). Distribution: northern Neotropical. New record of the species in Guatemala.

Ceratozetidae

Ceratozetes mediocris Berlese 1908: locality 4 (4 ex.). Distribution: Semicosmopolitan. New record of the genus and species in Guatemala.

Fuscozetes fuscipes (Koch 1844): locality 1 (6 ex.). Distribution: Holarctic, Costa Rica, Vietnam. New record of the genus and species in Guatemala.

Punctoribatidae

Lamellobates molecula (Berlese 1916): locality 1 (44 ex.), locality 2 (1 ex.). Distribution: Tropical, Subtropical. New record of the family, genus and species in Guatemala.

Mochlozetidae

Dynatozetes magnus (Banks 1895): locality 4 (3 ex.). Distribution: Nearctic, Ecuador. New record of the species in Guatemala.

Scheloribatidae

Scheloribates cf. *elegans* Hammer 1958: locality 1 (4 ex.), locality 3 (5 ex.), locality 4 (19 ex.). Distribution: Neotropical, Oriental, Hawaii. New record of the species in Guatemala.

Scheloribates praeincisus (Berlese 1910): locality 1 (6 ex.), locality 2 (1 ex.), locality 3 (1 ex.). Distribution: Oriental, Australasian, Afrotropical, Neotropical, southern Holarctic. New record of the species in Guatemala.

Oripodidae

Oripoda elongata Banks et Pergande 1904: locality 3 (1 ex.). Distribution: U.S.A., Mexico. New record of the family, genus and species in Guatemala.

Haplozetidae

Peloribates longisetosus (Willmann 1930): locality 1 (2 ex.), locality 3 (10 ex.). Distribution: Neotropical, eastern Palaearctic, India.

Protoribates paracapucinus (Mahunka 1988): locality 1 (1 ex.). Distribution: Tropical, Subtropical. New record of the genus and species in Guatemala.

Protoribates silvaticus sp. n.: locality 4 (5 ex.). Distribution: Guatemala.

Rostrozetes ovulum (Berlese 1908): locality 1 (6 ex.), locality 4 (2 ex.). Distribution: Tropical, Subtropical. New record of the genus and species in Guatemala.

Galumnidae

Galumna flabellifera Hammer 1958: locality 1 (6 ex.). Distribution: Tropical, Subtropical. New record of the genus and species in Guatemala.

Galumna laselvae P. Balogh 1997: locality 1 (1 ex.). Distribution: Neotropical. New record of the species in Guatemala.

Pergalumna guatemalaensis sp. n.: locality 1 (1 ex.), locality 4 (3 ex.). Distribution: Guatemala.

Pergalumna paraboliviana Ermilov et Gwiazdowicz 2015: locality 4 (39 ex.). Distribution: Peru. New record of the genus and species in Guatemala.

Trichogalumna nipponica (Aoki 1966): locality 4 (3 ex.). Distribution: Semicosmopolitan. New record of the genus and species in Guatemala.

The list includes 48 species belonging to 38 genera and 28 families. Of these, 39 species, 26 genera and 13 families are recorded for the first time from Guatemala; two species, one genus and one family are recorded for the first time from the Neotropical region. Four species are known only from Guatemala; 13 species are known from the Neotropical region; one species is known from the Nearctic region; one species is known from the Palaearctic region; 29 species have a broader distribution (more than one geographical region).

TAXONOMY

Hermanniella oblonga Ermilov sp. n.

(Figs 1, 2)

Type material. Holotype (♀) and six paratypes (♀♀): eastern Guatemala, Zacapa Department, Sierra de Las Minas, 9 km N. San Lorenzo, 2100 m a.s.l., damp litter in cloud forest, 17.XI.1986 (E.E. Lindquist).

The holotype is deposited in the collection of the Canadian National Collection, Ottawa, Canada; six paratypes are in the collection of the Tyumen State University Museum of Zoology, Tyumen, Russia. All specimens are preserved in 70% solution of ethanol with a drop of glycerol.

Diagnosis. Body length: 570–675. Body surface and tritonymphal exuvial scalp densely foveolate. Rostrum with median incision. Rostral seta medium-sized, setiform, slightly barbed; lamellar and interlamellar setae long, stiff, blunt, barbed; bothridial seta longer than lamellar and interlamellar setae, lanceolate, slightly barbed. Exuvial scalp with 10 pairs of medium-sized, stiff, blunt, barbed setae; f_1E curved forward; notogaster with four pairs (c_3 and p_3 absent) of remaining stiff, blunt, barbed notogastral setae (h_1, h_2, p_1, p_2). Subcapitular seta *a* narrowly phylliform, with short setiform apex. Six pairs of genital setae. Leg setae *p*' and *p*'' on tarsi II–IV absent.

Description. *Measurements*. Body length: 630 (holotype), 570–675 (paratypes); notogastral width: 420 (holotype), 375–450 (paratypes).

Integument. Body color brown. Body and legs covered by gel-like cerotegument including dense microgranulate and bacillar components; body surface (including subcapitular mentum, and genital and anal plates) densely foveolate (diameter of foveola up to 15); tritonymphal exuvial scalp densely foveolate (each foveola usually with two very small openings).

Prodorsum. Rostrum with median incision. Rostral seta (45–56) setiform, slightly barbed; lamellar and interlamellar setae (94–105) stiff, blunt, barbed; bothridial seta (131–142) with long stalk and shorter, lanceolate, slightly barbed head; exobothridial seta (5) needleform.

Notogaster. Notogaster covered by exuvial scalp bearing 10 pairs of setae (c_1E, c_2E, d_2E, cpE, e_2E, f_2E, h_3E: 67–79; d_1E, e_1E, f_1E: 52–60) stiff, blunt, barbed; f_1E curved forward; true setae under exuvium reduced (represented by alveoli); four pairs (c_3 and p_3 completely absent) of remaining notogastral setae (p_1, h_1, h_2: 60–71; p_2: 34–45) stiff, blunt, barbed. Opisthonotal gland opening and lyrifissures *ia*, *im* and *ip* distinct; *ih* and *ips* not observable.

Gnathosoma. Subcapitulum size: 150–161 × 124–131; subcapitular seta *a* (43–45) narrowly phylliform, barbed, with short setiform apex; *m* (34–37) and *h* (37–41) slightly stiff, narrowed distally, barbed; both adoral setae (15) setiform, barbed. Palp length: 71–75; postpalpal seta (11–13) spiniform, smooth. Chelicera length: 180–184; setae (*cha*: 64–71; *chb*: 37–41) setiform, barbed.

Epimeral and lateral podosomal regions. Epimeral setal formula: 3–1–2–3 (*3c* absent); all setae (26–37) slightly stiff, narrowed distally, barbed. Ventrosejugal region with one pair of distinct elongate saccules.

Anogenital region. Anogenital setal formula: 6–1–2–3; genital (17–22), aggenital (*ag*: 26–37), anal (26–37), and adanal (ad_1: 60–71; ad_2, ad_3: 34–41) setae slightly stiff, narrowed distally, barbed. Adanal

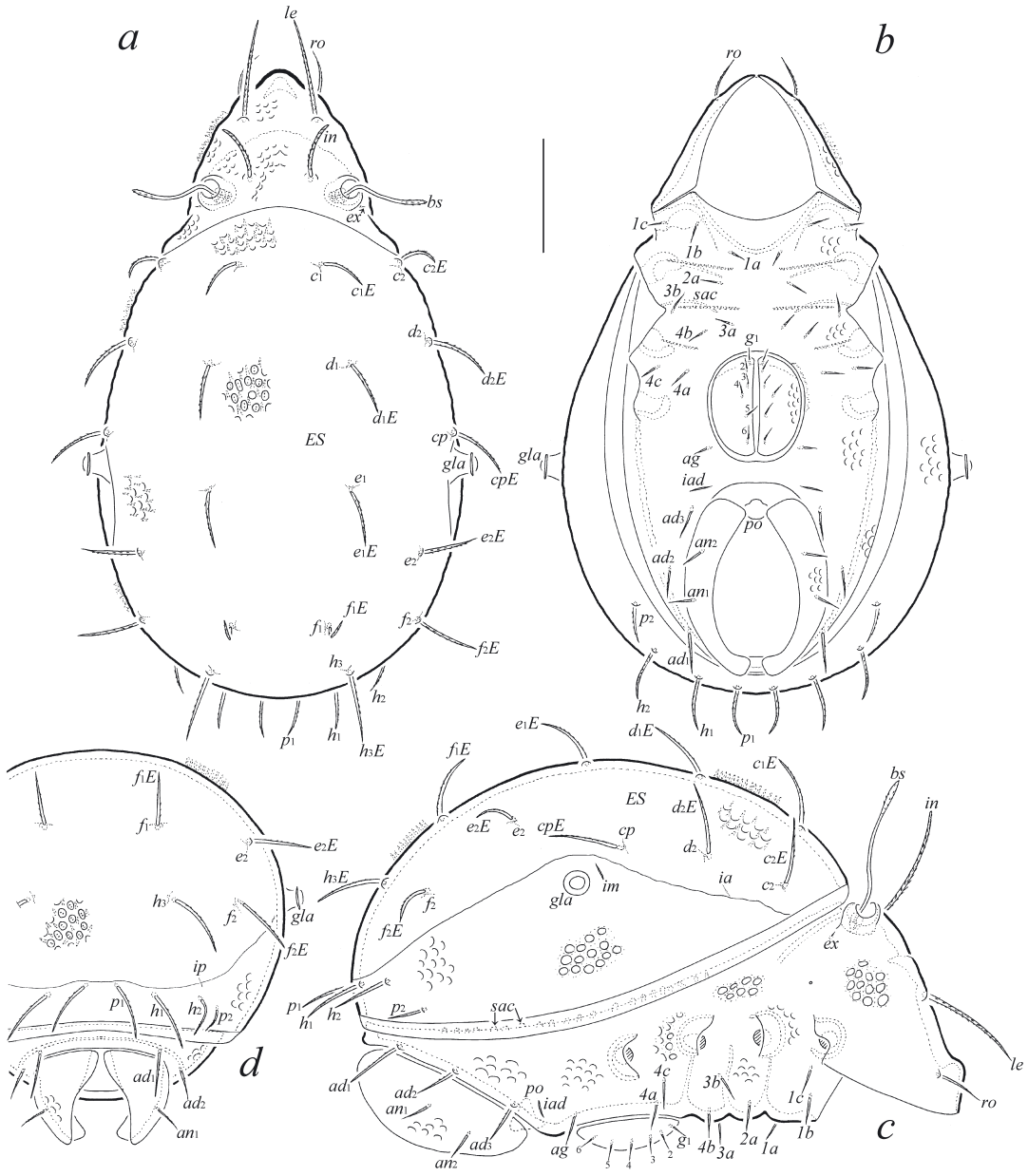

Fig. 1. *Hermanniella oblonga* Ermilov sp. n., adult (gnathosoma and legs not shown): *a* – dorsal view, *b* – ventral view, *c* – right lateral view, *d* – posterior view (part of left half not shown). Scale bar 100 μm.

lyrifissure transversely oriented, located anterolaterally to anal aperture.

Legs. Monodactylous; claw of all tarsi slightly barbed on dorsal side, with tooth ventrobasally. Formulas of leg setation and solenidia: I (1–4–5–5–18) [1–2–2], II (1–4–5–5–14) [1–1–2], III (2–3–3–4–10) [1–1–0], IV (1–2–3–4–10) [0–1–0]; homology of setae and solenidia indicated in Table 1. Setae *p*' and *p*'' on tarsi II–IV absent.

C o m p a r i s o n. *Hermanniella oblonga* Ermilov sp. n. is most similar to *H. granulata* (Nicolet 1855) from the Holarctic and Oriental regions (see Pérez-Íñigo, 1970, 1997; Qiao et al., 2011) in the main morphological traits. In particular, body surface densely foveolate; lamellar and interlamellar setae long, stiff, barbed; bothridial seta lanceolate; setae of exuvial scalp medium-sized, stiff, barbed, with f_1E curved forward. However, the new species differs from *H. granulata* in the presence of four (versus five) pairs of setae in the posterior part of the notogaster, the presence of six (versus seven) pairs of genital setae, and in the relative length of the interlamellar and bothridial setae (*bs* longer than *in* versus *in* longer than *bs*).

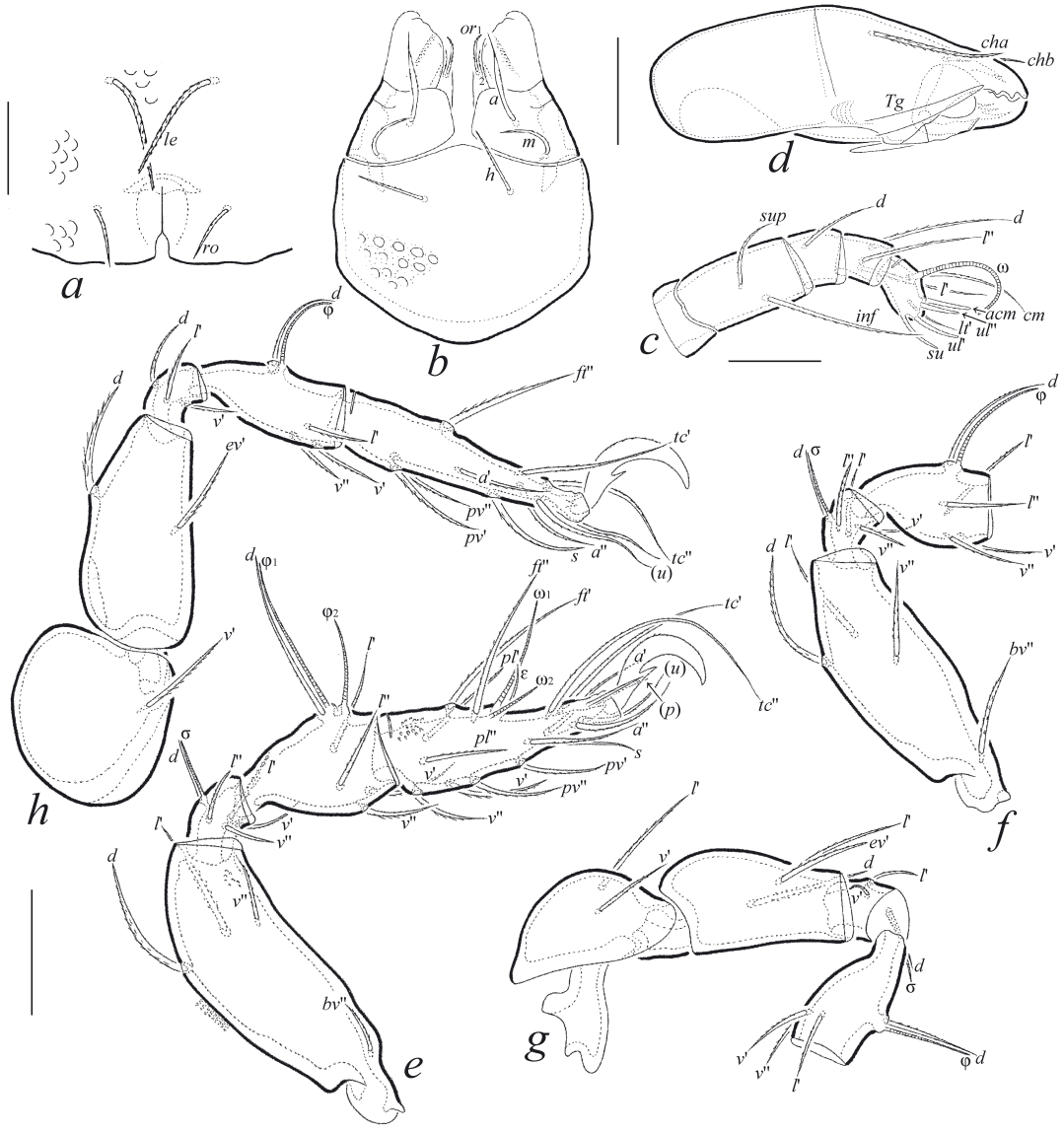

Fig. 2. *Hermanniella oblonga* Ermilov sp. n., adult: *a* – anterior part of prodorsum, anterodorsal view; *b* – subcapitulum, ventral view; *c* – palp, right, antiaxial view; *d* – chelicera, left, paraxial view; *e* – leg I (trochanter not shown), right, antiaxial view; *f* – leg II (trochanter and tarsus not shown), right, antiaxial view; *g* – leg III (tarsus not shown), left, antiaxial view; *h* – leg IV, left, antiaxial view. Scale bars, μm: *a*, *b*, *d*–*h* –5; *c* – 20.

Table 1. Leg setation and solenidia of adult *Hermanniella oblonga* Ermilov sp. n.

Leg	*Tr*	*Fe*	*Ge*	*Ti*	*Ta*
I	*v'*	*d*, *l'*, *bv''*, *v''*	(*l*), (*v*), *d*σ	(*l*), (*v*), *d*φ$_1$, φ$_2$	(*ft*), (*tc*), (*p*), (*u*), (*a*), *s*, (*pv*), (*v*), (*pl*), ε, ω$_1$, ω$_2$
II	*v'*	*d*, *l'*, *bv''*, *v''*	(*l*), (*v*), *d*σ	(*l*), (*v*), *d*φ	(*ft*), (*tc*), (*u*), (*a*), *s*, (*pv*), (*v*), *l''*, ω$_1$, ω$_2$
III	*l'*, *v'*	*d*, *l'*, *ev'*	*l'*, *v'*, *d*σ	*l'*, (*v*), *d*φ	*ft''*, (*tc*), (*u*), (*a*), *s*, (*pv*)
IV	*v'*	*d*, *ev'*	*d*, *l'*, *v'*	*l'*, (*v*), *d*φ	*ft''*, (*tc*), (*u*), (*a*), *s*, (*pv*)

Notes. Roman letters refer to normal setae; Greek letters refer to solenidia (except ε – famulus); single quotation mark (') designates setae on the anterior and double quotation ('') setae on the posterior side of a given leg segment; parentheses indicate addition of both members of a pseudosymmetrical pair; juxtaposition of seta *d* with solenidion indicates coupling.

E t y m o l o g y. The specific epithet *oblonga* comes from the Latin word for “long” and alludes to the species’ long bothridial seta.

Protoribates silvaticus Ermilov sp. n.

(Figs 3, 4)

T y p e m a t e r i a l. Holotype (♀) and four paratypes (3♂♂, 1♀): eastern Guatemala, Zacapa Department, Sierra de Las Minas, 9 km N. San Lorenzo, 2100 m a.s.l., damp litter in cloud forest, 17.XI.1986 (E.E. Lindquist).

The holotype is deposited in the collection of the Canadian National Collection, Ottawa, Canada; four paratypes are in the collection of the Tyumen State University Museum of Zoology, Tyumen, Russia. All specimens are preserved in 70% solution of ethanol with a drop of glycerol.

D i a g n o s i s. Body length: 630–720. Rostrum slightly protruding, rounded. Rostral region with two longitudinal carinae. Rostral, lamellar and interlamellar setae long (*in*≫ *le* > *ro*), setiform, barbed; bothridial

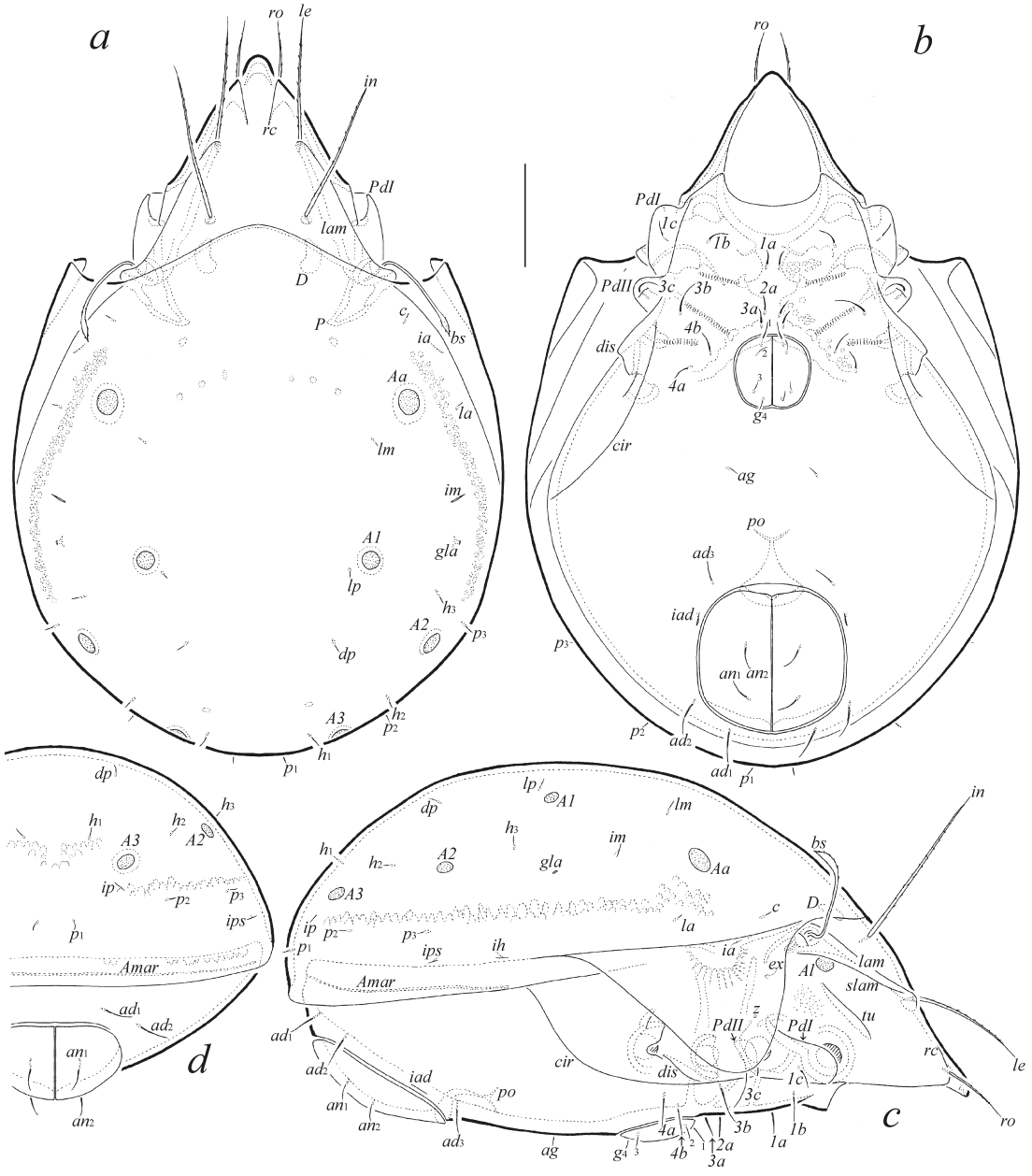

Fig. 3. *Protoribates silvaticus* Ermilov sp. n., adult (gnathosoma and legs not shown): *a* – dorsal view, *b* – ventral view, *c* – right lateral view, *d* – posterior view (part of left half not shown). Scale bar 100 μm.

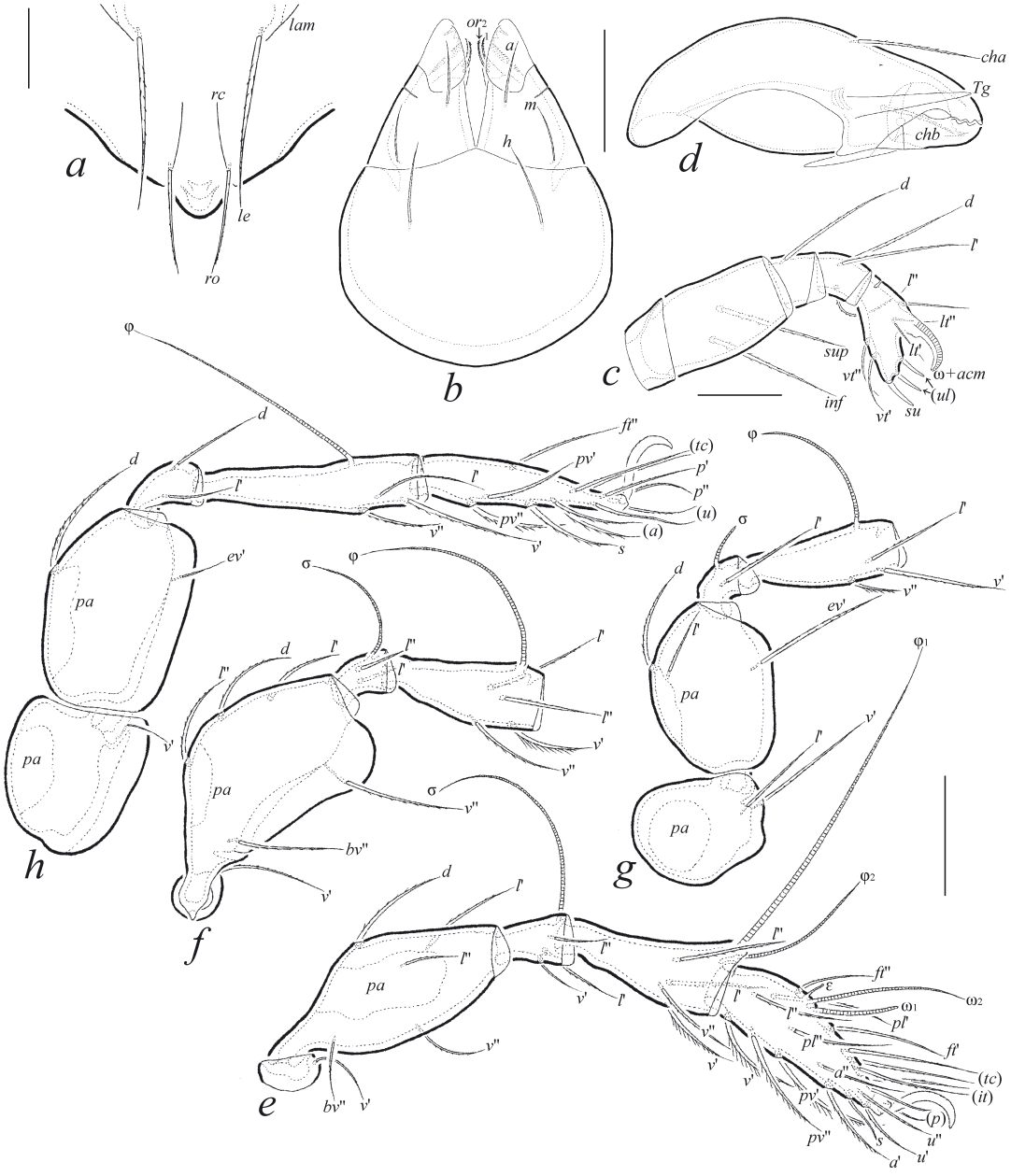

Fig. 4. *Protoribates silvaticus* Ermilov sp. n., adult: *a* – anterior part of prodorsum, anterodorsal view; *b* – subcapitulum, ventral view; *c* – palp, left, paraxial view; *d* – chelicera, left, paraxial view; *e* – leg I, right, antiaxial view; *f* – leg II (tarsus not shown), right, antiaxial view; *g* – leg III (tarsus not shown), left, antiaxial view; *h* – leg IV, left, antiaxial view. Scale bars, μm: *a*, *b*, *d*–*h* –5; *c* – 20.

seta long, lanceolate, slightly barbed. Notogaster with 11 pairs (*dp* present) of short, needleform setae. Four pairs of porose areas comparatively large, rounded/oval. Epimeral setal formula: 3–1–3–2 (*4c* absent). Four pairs of genital setae; adanal setae ad_1 and ad_2 medium-sized, ad_3 shorter, all setae setiform, roughened. All leg tarsi with one claw. Leg tarsus I with 20 setae (*l*'' and *v*' present); tarsus II with 15 setae (*l*'' absent); genu II with two setae (*v*' absent).

D e s c r i p t i o n. *Measurements*. Body length: 705 (holotype), 630–720 (paratypes); notogastral width: 495 (holotype), 420–495 (paratypes). Nor difference between males and females in body size.

Table 2. Leg setation and solenidia of adult *Protoribates silvaticus* 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*), *v*', (*pl*), *l*", 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_1, ω_2
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*)

Notes. See Table 1 for explanations.

Integument. Body brown. Body surface smooth; lateral side of body partially with dense microgranulate cerotegument.

Prodorsum. Rostrum slightly protruding, rounded. Rostral region with two longitudinal parallel carinae. Lamella and sublamella about 1/2 length of prodorsum; sublamellar porose area rounded or oval (15–17; 19 × 15); tutorium about 2/3 length of lamella. Rostral (67–71), lamellar (116–124) and interlamellar (161–169) setae setiform, barbed; bothridial seta (102–116) with long stalk and shorter lanceolate, slightly barbed head; exobothridial seta (11–15) setiform, roughened. Dorsosejugal porose area not observable.

Notogaster. Pteromorphal hinge distinct. Eleven pairs (*dp* present) of notogastral setae (9–11) needleform. Four pairs of porose areas rounded/oval developed (*Aa*: 26–34; 30–34 × 19–26; *A1*, *A2*, *A3*: 19–22; 19–26 × 15–19). Opisthonotal gland opening and all lyrifissures distinct.

Gnathosoma. Subcapitulum size: 135–150 × 109–112; subcapitular setae (*a*, *m*: 26–30; *h*: 36–41) setiform, slightly barbed; both adoral setae (15) setiform, barbed. Palp length: 86–94; postpalpal seta (7) spiniform, smooth. Chelicera length: 146–150; setae (*cha*: 52–56; *chb*: 34–37) setiform, barbed.

Epimeral and lateral podosomal regions. Epimeral setal formula: 3–1–3–2 (*4c* absent); setae (*3c*: 60–64; *3b*: 41–49; others: 19–22) setiform, roughened. Circumpedal carina medium-sized, directed to pedotectum II. Discidium triangular.

Anogenital region. Anogenital setal formula: 4–1–2–3; genital (g_1: 19–22; g_2-g_4: 11–15), aggenital (13–15), anal (17–19), and adanal (ad_1, ad_2: 26–30; ad_3: 22–26) setae setiform, roughened. Adanal lyrifissure close and parallel to anal plate. Marginal porose area complete, band-like.

Legs. Monodactylous; claw of all tarsi slightly barbed on dorsal side. Femur II broadly rounded distoventrally. Porose area on femora I–IV and on trochanters III, IV well visible; proximoventral porose area on tarsi I–IV and distoventral porose area on tibiae I–IV not observable. Formulas of leg setation and solenidia: I (1–5–3–4–20) [1–2–2], II (1–5–2–4–15) [1–1–2], 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 2. Seta *s* on tarsus I eupathidial, inserted before setae *a*' and *a*".

C o m p a r i s o n. *Protoribates silvaticus* Ermilov sp. n. is most similar to *P. mollicoma* (Hammer 1973) from the Australasian and Oriental regions (see Hammer, 1973) in the presence of: lanceolate bothridial seta, four pairs of genital setae, and monodactylous legs. However, the new species differs from *P. mollicoma* in the presence of protruding (versus rounded) rostrum, the presence (versus absence) of two longitudinal carinae in the rostral region, and in the length of the notogastral and aggenital setae (very short versus medium-sized).

E t y m o l o g y. The specific epithet *silvaticus* comes from the Latin word for "forest" and alludes to the habitat of the new species.

Pergalumna guatemalaensis Ermilov sp. n.

(Figs 5, 6)

T y p e m a t e r i a l. Holotype (♀) and two paratypes (♀♀): eastern Guatemala, Zacapa Department, Sierra de Las Minas, 9 km N. San Lorenzo, 2100 m a.s.l., damp litter in cloud forest, 17.XI.1986 (E.E. Lindquist).

The holotype is deposited in the collection of the Canadian National Collection, Ottawa, Canada; two paratypes are in the collection of the Tyumen State University Museum of Zoology, Tyumen, Russia. All specimens are preserved in 70% solution of ethanol with a drop of glycerol.

D i a g n o s i s. Body length: 600–630. Rostrum rounded. Rostral seta medium-sized, lamellar seta long, both setiform, slightly barbed; interlamellar seta very short, needleform; bothridial seta setiform, barbed, not reaching pteromorphal alary furrow. Dorsosejugal porose area present. Dorsosejugal suture absent. Three pairs (*Aa*, *A2*, *A3*) of rounded/oval porose areas developed; *Aa* located between setal alveoli *la* and *lm*, clearly closer to *lm*. Median pore absent. Lyrifissure *im* located anterolaterally to *A2*. Epimeral setal formula: 1–0–2–3 (*1b*, *3b*, *3c 4a*, *4b*, *4c*). Circumpedal carina medium-sized. Anogenital seta short. Postanal porose area small, elongate oval. Leg solenidion on tibia IV inserted in anterior part of the segment but close to the middle.

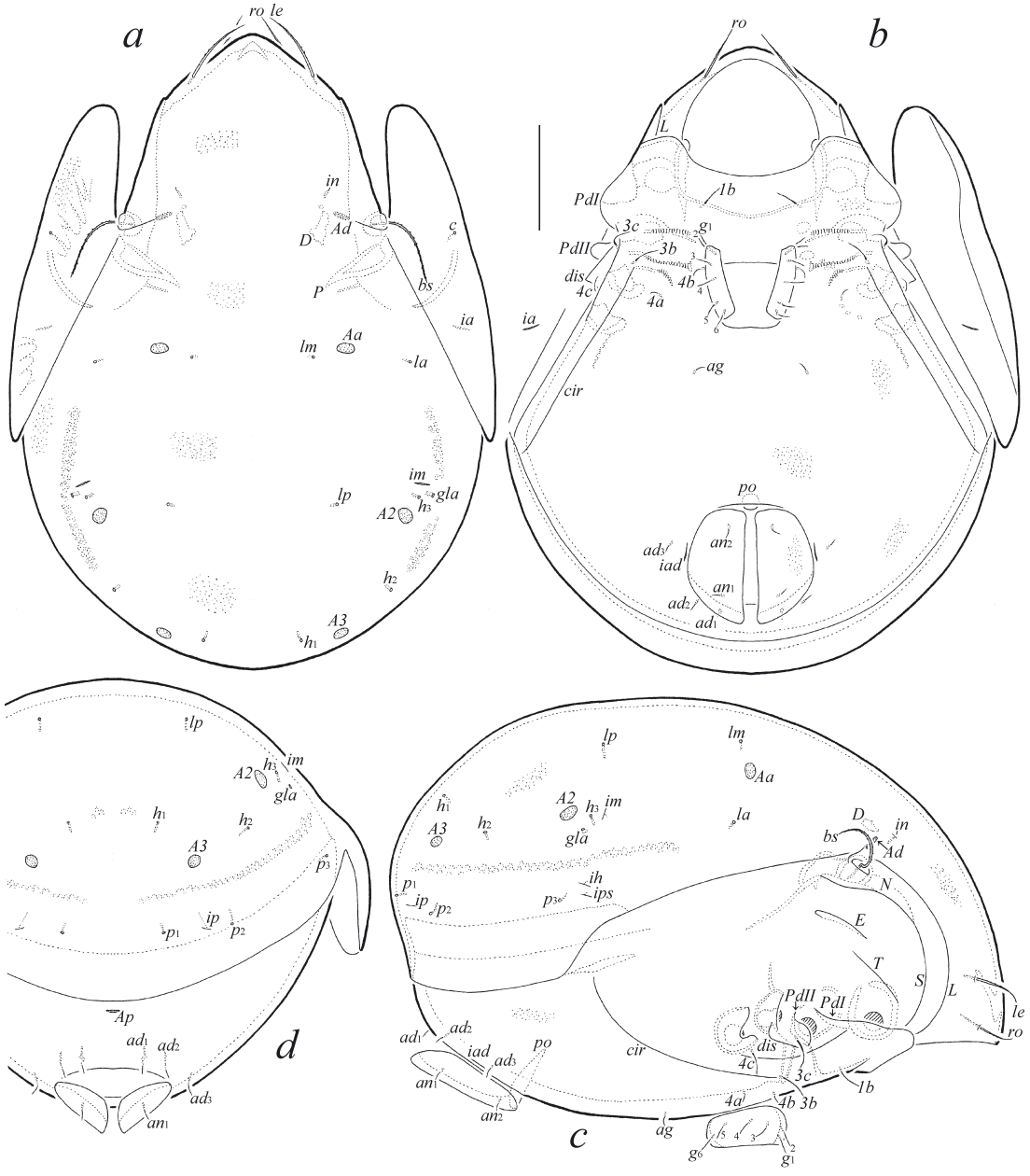

Fig. 5. *Pergalumna guatemalaensis* Ermilov sp. n., adult (gnathosoma and legs not shown): *a* – dorsal view, *b* – ventral view (right pteromorph not shown), *c* – right lateral view (right pteromorph not shown), *d* – posterior view (part of left half not shown). Scale bar 100 μm.

D e s c r i p t i o n. *Measurements*. Body length: 630 (holotype), 600–615 (paratypes); notogaster width: 450 (holotype), 435–460 (paratypes).

Integument. Body color brown. Body surface with dense microgranulate sculpturing; leg femora I–IV and trochanters III, IV partially tuberculate.

Prodorsum. Rostrum rounded. Lamellar and sublamellar lines thin, parallel, curving backwards mediodistally. Rostral (41–49) and lamellar (67–75) setae setiform, slightly barbed; insertion of lamellar seta distanced from lamellar line; interlamellar seta (7) needleform; bothridial seta (86–98) setiform, barbed, not reaching pteromorphal alary furrow in dorsal aspect; exobothridial seta absent. Dorsosejugal porose area transverse, narrowly oval (19–26 × 7), located posterolaterally to insertion of interlamellar seta. Dorsophragma comparatively long.

Notogaster. Dorsosejugal suture absent. All notogastral setae represented by setal alveoli. Three pairs (*A1*

Fig. 6. *Pergalumna guatemalaensis* Ermilov sp. n., adult: *a* – anterior part of prodorsum, anterodorsal view; *b* – subcapitulum, ventral view; *c* – palp, right, antiaxial view; *d* – chelicera, left, paraxial view; *e* – leg I (trochanter not shown), right, antiaxial view; *f* – leg II (tarsus not shown), left, paraxial view; *g* – leg III (tarsus not shown), right, paraxial view; *h* – leg IV, right, antiaxial view. Scale bars, μm: *a*, *b*, *d*–*h* –5; *c* – 20.

absent) of rounded/oval porose areas developed (*Aa*, *A2*, *A3*: 15–26; 19–26 × 11–19); *Aa* distanced from pteromorphal hinge, located between setal alveoli *la* and *lm*, clearly closer to *lm*. Median pore absent. Opisthonotal gland opening and all lyrifissures distinct: *gla* and *im* close to each other, anterolaterally to *A2*; *ip* between p_1 and p_2; *ih* and *ips* close to each other, anteriorly to p_3.

Gnathosoma. Size of subcapitulum: 139–154 × 112–135; subcapitular setae (*a*: 26–30; *m*: 17–19; *h*: 13–15) setiform, roughened; both adoral setae (13–15) setiform, barbed. Length of palp: 112–131; postpalpal seta (7) spiniform, smooth. Length of chelicera: 195–206; setae (*cha*: 52–56; *chb*: 35–37) setiform, barbed.

Epimeral and lateral podosomal regions. Epimeral setal formula: 1–0–2–3; setae *1b*, *4c* (19–22) and *3b*, *3c* (22–26) setiform, roughened; *4a* and *4b* (7–11) needleform. Circumpedal carina medium-sized, directed to insertion of seta *3b*.

Table 3. Leg setation and solenidia of adult *Pergalumna guatemalaensis* Ermilov sp. n.

Leg	*Tr*	*Fe*	*Ge*	*Ti*	*Ta*
I	*v*'	*d*, (*l*), *bv*''	(*l*), *v*', σ	(*l*), (*v*), φ_1, φ_2	(*ft*), (*tc*), (*it*), (*p*), (*u*), (*a*), *s*, (*pv*), *v*', (*pl*), *l*'', ε, ω_1, ω_2
II	*v*'	*d*, (*l*), *bv*''	(*l*), *v*', σ	(*l*), (*v*), φ	(*ft*), (*tc*), (*it*), (*p*), (*u*), (*a*), *s*, (*pv*), ω_1, ω_2
III	*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*)

Notes. See Table 1 for explanations.

Anogenital region. Anogenital setal formula: 6–1–2–3; genital setae (13–15) setiform, smooth; aggenital, anal and adanal setae (7) needleform. Anterior edge of genital plate with two setae. Aggenital setae located between genital and anal apertures, closer to the former. Adanal lyrifissure close and parallel to anal plate. Adanal setae ad_1 and ad_2 posteriorly, ad_3 laterally to anal plate; distance ad_1-ad_2 shorter than ad_2-ad_3. Postanal porose area elongate oval (11–19 × 4).

Legs. Median claw distinctly thicker than lateral claws; all claws slightly barbed on dorsal side. Porose area on femora I–IV and on trochanters III, IV well visible; proximoventral porose area on tarsi I–IV and distoventral porose area on tibiae I–IV not observable. Formulas of leg setation and solenidia: I (1–4–3–4–20) [1–2–2], II (1–4–3–4–15) [1–1–2], III (1–2–1–3–15) [1–1–0], IV (1–2–2–3–12) [0–1–0]; homology of setae and solenidia indicated in Table 3. Famulus on tarsi I inserted between solenidia ω_1 and ω_2; seta *s* on tarsus I eupathidial, inserted before setae *a*' and *a*''; solenidion on tibia IV inserted in anterior part of the segment but close to the middle.

C o m p a r i s o n. *Pergalumna guatemalaensis* Ermilov sp. n. is most similar to *P. striatiprodorsum* Ermilov, Alvarado-Rodríguez et Retana-Salazar 2014 from the Neotropical region (see Ermilov et al., 2014) in the main morphological traits. In particular, rostrum rounded; interlamellar seta minute; bothridial seta medium-sized, setiform; dorsosejugal suture absent; three pairs of notogastral porose areas rounded/oval, with *Aa* positioned between *la* and *lm*, closer to *lm*; median pore absent; *im* and *gla* located close to each other, anterolaterally to *A2*; circumpedal carina medium-sized; all adanal setae minute. However, the new species differs from *P. striatiprodorsum* in the absence (versus presence) of numerous longitudinal stria on the prodorsum, and in the morphology of interlamellar seta (needleform versus slightly thickened).

E t y m o l o g y. The specific epithet *guatemalaensis* refers to the country of origin, Guatemala.

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The authors of this work declare that they have no conflicts of interest.

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НОВЫЕ ФАУНИСТИЧЕСКИЕ И ТАКСОНОМИЧЕСКИЕ ДАННЫЕ ПО ПАНЦИРНЫМ КЛЕЩАМ (ACARI, ORIBATIDA) ГВАТЕМАЛЫ

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Исследование базируется на орибатологических материалах, собранных в четырех локациях Гватемалы. Представлен перечень из 48 видов, относящихся к 38 родам и 28 семействам; из них 39 видов, 26 родов и 13 семейств отмечены для Гватемалы впервые, а два вида, один род и одно семейство отмечены для Неотропической области впервые. Описаны три новых вида: *Hermanniella oblonga* Ermilov sp. n. (Hermanniellidae), *Protoribates silvaticus* Ermilov sp. n. (Haplozetidae) и *Pergalumna guatemalaensis* Ermilov sp. n. (Galumnidae).

Ключевые слова: Неотропическая фауна, таксономия, новая находка, новый вид, *Hermanniella*, *Protoribates*, *Pergalumna*