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# UNUNGUITARSONEMUS TREMULAE, A NEW SPECIES OF TARSONEMID MITES (ACARI: HETEROSTIGMATA) FROM CRIMEA, UKRAINE

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*Ununguitarsonemus tremulae* sp. n. is described and illustrated based on the female, male and larva. Morphology and systematics of the new taxon are briefly discussed.

Key words: Tarsonemidae, *Ununguitarsonemus*, new species, taxonomy, kambio- and xylophages

## INTRODUCTION

The genus *Ununguitarsonemus* BEER & NUCIFORA, 1965 contains three species, namely *U. beameri* (BEER, 1958), *U. peacocki* SMILEY & MOSER, 1974, and *U. rarus* MAGOWSKI, DI PALMA & KHAUSTOV, 1999. This paper deals with newly discovered species of this genus, whose presence was previously announced in KHAUSTOV & MAGOWSKI (2003).

## MATERIAL AND METHODS

Mites were collected under the bark slabs of poplar, viewed with the stereomicroscope, and subsequently mounted in slide preparations in the BERLESE medium. Morphology was studied with phase- contrast microscope Olympus BX 50 supplied with drawing attachment.

The description text and drawings nomenclature follow LINDQUIST (1986) and abbreviated as follows: PrS (prodorsal shield), PrP (ventral propodosomal plate), MeP (ventral metapodosomal plate), tg (tegula), ap. 1–1, ap. 2–2 (distances between anterolateral ends of apodemes 1–1 and 2–2 respectively), Ta (tarsus), Tbt (tibiotarsus), Tb (tibia), Ge (genu), Fege (femorogenu), Fe (femur), Tr (trochanter). Tiny setae *u'-u"* flanking pretarsi are excluded from the setal count; sign "-" marks separation of leg segments, sign "+"-their fusion. All measurements are given in μm; legs are compared using dimension from the apex of tarsal or tibiotarsal segment to the proximal end of femur or femorogenu.

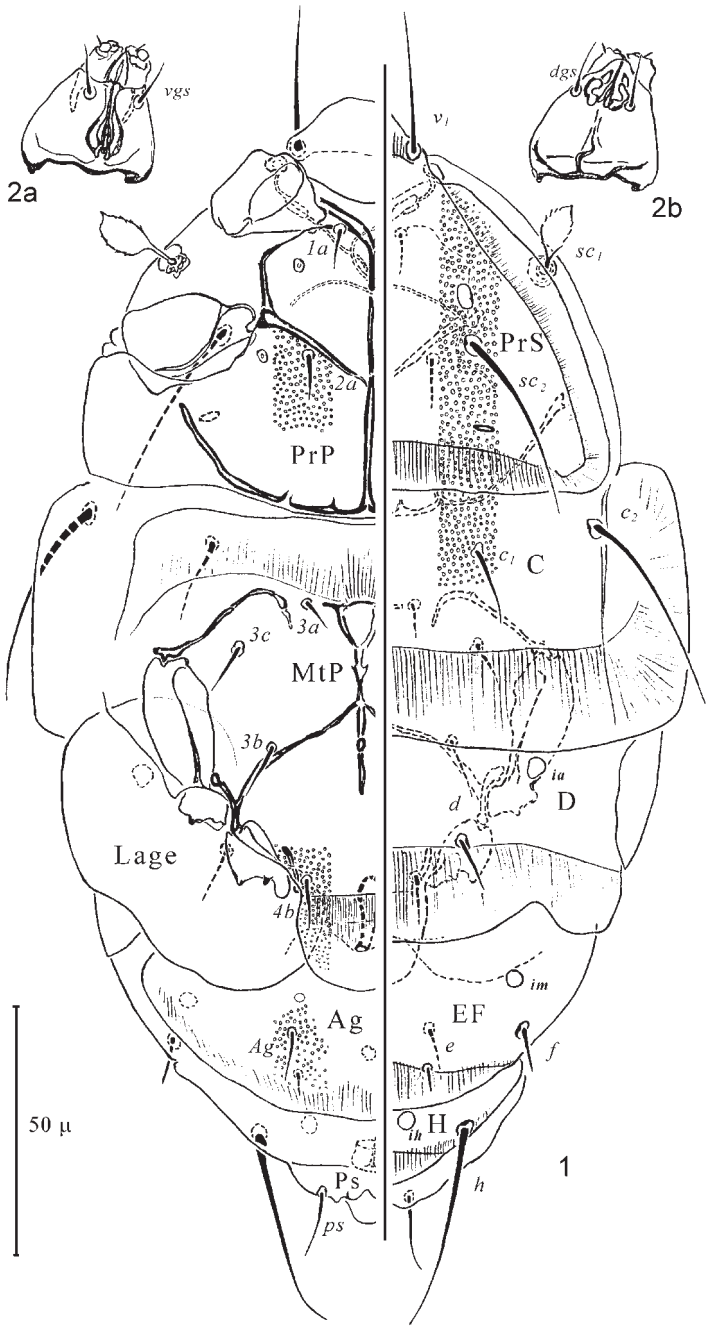
**Ununguitarsonemus tremulae** sp. n.
(Figs 1–17)

Diagnosis: Females, of the new species are distinguishable from those of all other species by subsurface dorsal nodules moved forward under prodorsal shield (PrS) rather than tergite C. They also differ from the most similar *U. peacocki* by $c_2$ reaching almost to the posterior margin of its tergite, and setae *f* twice shorter than *e*. Apodemes IV reaching the edge of metapodosomal plate between trochanters III and IV ventrally, and setae *ag* in a distance of over twice their length. The new species differs also from *U. beameri* by $c_1$, *d* and *e* slender, attenuate rather than stiff and robust; and from *U. rarus* by the capitate sensilli and rounded lobe-like shape of tegula. Males differing from those known of two other species (*U. beameri* and *U. peacocki*) by dorsal setae $c_1$ an *d* both attenuate, sharply pointed and located closely neighbouring each other; setae *e* less than twice shorter than *f*; tegula narrow, inscized terminally, femorogenu IV with very small subcircular adaxial protrusion and seta Fe *v'* separated from Ge *v'* by a distance of almost its two lengths. Larvae uniquely having their setae $sc_1$ stiff, blunt, apparently shorter than $v_1$.

Description: Female (Figs 1–6): Gnathosoma: shape rounded-trapezoidal in outline. Pharynx as wide as 0.3× of basal width, and as long as 0.6× ventral length of gnathosomal capsule; glandular bodies small, but apparent. Pharynx with broad, strongly sclerotized outer part. Setae *dgs* longer than *vgs*, none reaching clearly beyond apices of palpi, postpalapal (*pp*) setae indiscernible. Cheliceral stylets and levers apparent, well developed. Palpi short, less than twice longer than wide at the base, inserted approximate each to another. Each palpus with one apparent seta subapically and one small ventral process; palptibial claw present but weakly defined.

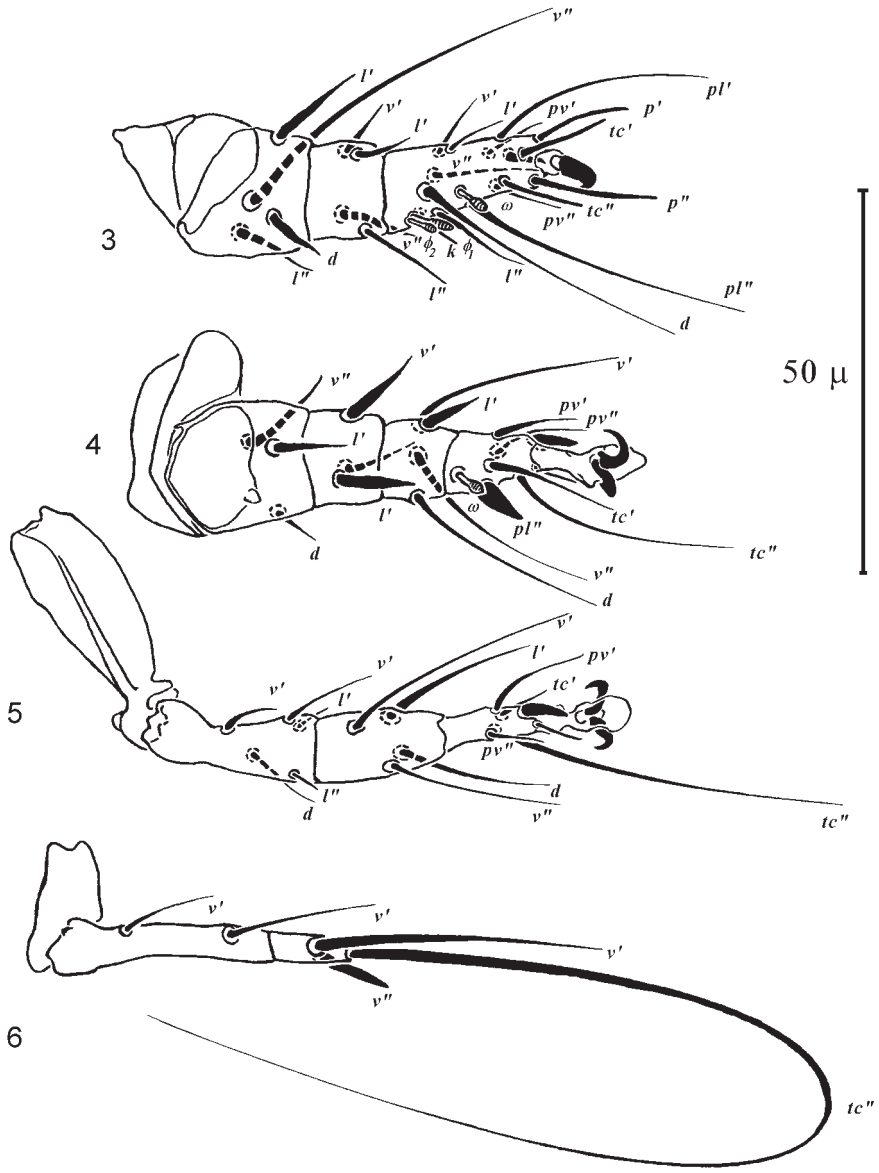
Idiosoma- dorsum (length: width ratio = 2:1); relative lengths of dorsal setae ($v_1$:$sc_2$:$c_2$:$c_1$:*d*:*e*:*f*:*h*) : 1:1.6:1.5:0.6:0.5:0.4:0.2:1.8. Rostral shieldlet rounded, truncated anteriorly, and weakly concave laterally, ca. 2× wider than long. Setae $v_1$ slender, tapering, pointed, located in a distance ca. equal to their lengths. PrS with straight posterior edge, 1.4× as wide posteriorly as long medially; prodorsomedial apodeme absent; prodorsolateral apodemes present. Sensilli $sc_1$ clavate, pilose, acutely pointed, 2.5× as long as wide. Tracheae with well expressed atria, without postatrial extensions. Pits $v_2$ located in front of, and close to bases of $sc_2$. Setae $sc_2$ located behind the half of length of prodorsal shield, reaching clearly beyond the posterior edge of PrS, in a reciprocal distance of 1.3× their lengths. Setae $c_2$ apparently longer the distance between their bases and those of *c1*. Setae $c_1$ slender, sharp, not reaching to the posterior edge of a tergite C; located in a reciprocal distance of 3.6× their lengths and slightly posteriad of a level of $c_2$. Subsurface nodules under PrS. Setae *d* tapering, pointed, slightly barbed, not reaching beyond the posterior edge of tergite D, in a distance of 4.1× their lengths. Posterior edge of D with pronounced emarginations respective of setae *e* of the following tergite. Setae *e* and *f* pointed but stiff, *f* twice shorter than *e*; *f* located in a reciprocal distance of 5.6× their lengths. Setae *h*, the longest of all on dorsum, inserted in a distance equal to their lengths.

Idiosoma-venter: apodemes 1 and 2 well marked, anteromedial apodeme with two weak discontinuities: between the level of aps. 1 and aps. 2, and at the level of aps. 2. Sejugal apodeme discontinuous between median and lateral parts, the latter weakly angled near their midlengths. All setae of podosomal plates tapering, pointed. Setae *1a* located slightly below aps. 1, and slightly shorter than




**Figs 1–2.** *Ununguitarsonemus tremulae* sp. n., female: 1 = idiosoma, 2 = gnathosoma, a – venter, b – dorsum

*2a*; in a distance of 1.8× larger than their length. That between *2a* about 3× lengths. Setae *2a* located below midlengths of apodemes 2. Propodosomal plate concave anteriorly, protruding under the base of gnathosoma, with angularities of edges between trochanters I and II. Setae *3a* very short, inserted in a distance of their 3.2× each to another (i.e. apparently smaller than that between *3b*) and that of 5×




**Figs 3–6.** *Ununguitarsonemus tremulae* sp. n., female legs: 3 = leg I dorsal aspect, 4 = leg II dorsal aspect, 5 = leg III ventral aspect, 6 = leg IV ventral aspect

their lengths from bases of *3b*. Setae *3b* subequal to *3c*, and spaced by the distance of their 3.6× lengths. Setae *3c* inserted posteriad of mid-parts of apodemes 3, in a distance of ca 4.5× their lengths. Metapodosomal plate very slightly concave anteriorly, without protrusions at the level of trochanters IV. Apodemes 4 reaching margins of metapodosomal plate between trochanters III and IV. Setae *4b* in a reciprocal distance of 2.3× their lengths. Trochanters IV divided by the interval of ca. 3× their widths. Tegula rounded, about 0.7× as long as wide. Posteromedial apodeme continuous, with pronounced anterior bifurcation and uniting with apodemes 4. Posterolateral apodemes of metapodosoma small. Aggenital setae slightly longer than *4b*, located in a distance of 2.3× their length (similar to that between *4b*) far posteriad of tegula. Aggenital plate with posterior margin convex, weakly undulated. Setae *ps* slender, delicate, in a distance of 1.3× their length each to another. Surface of dorsal and ventral sclerites covered with uniform, conspicuous, dimpled ornamentation.

Legs: Proportions of free of legs: (I:II:III:IV) : 1:1:1:0.8. Chaetotaxy of leg I: 4–4–6(2$\phi$)+ 9(1$\omega$); leg II: 3–3–4–6(1$\omega$); leg III: 2+3–4–5. Tarsal claw of leg I hooked, relatively smaller and less apparent than those in *U. beameri* or *U. peackoki*; comparable in size to claws of tarsi II and III. Seta *s* tapering, pointed, stout, but weaker (?) than setae *u'* of tarsi II and III. Setae *u'* and *u"* indiscernible. Tibiotarsus slightly tapering, ca. 2× longer than wide at the base. Eupathidion *p'* shorter than *p"*, both located apically; eupathidion *tc'* equal to *p'*, located subapically; *tc"* located in distal 1/3 length of the segment; eupathid *ft'* absent. Solenidion $\omega$ typically clavate, slightly larger than Ta II $\omega$. Solenidion $\phi_2$ smaller than $\phi_1$ (both with striated head), famulus *k* the longest in the cluster; located near solenidia. Genual setae tapering, pointed, strong at their bases. Setae *l'* and *d* on femur I strong, attenuated; *d* shorter; seta *v"* the longest of all of leg I and nearly 4× longer than that on femur II. Claws on tarsus II large, hooked, both well developed, empodium smaller than the basal stalk. Seta *u'* spine-like, *u"* weak. Seta *pl"* strongly spine-like, very apparently larger than, and located distally to solenidion Ta II $\omega$. Seta *tc"* about 2× longer than *tc'* and ca. 2.5× than other tarsals, reaching far beyond the tip of empodium. Tibial seta *l'* stout, sharply pointed, other on the segment attenuate. Femur without lobe; seta *d* smallest of all on femur. Tarsal claws III almost as large as those of leg II. Empodium as large as the basal stalk. Setae *u'* and *u"* as in tarsus II. Seta *tc"* markedly (about 3×) longer than attenuate *pv'*. Free segments of leg IV roughly equal in length to femorogenu and tibia III. Femorogenu ca. 2.5× longer than tibiotarsus. Femoral seta shorter than genual one, both attenuate. Seta Tb *v'* apparently longer than femorogenu; slender, pointed; *v"* stout, bladelike, as long as tibiotarsus. Seta Ta *tc"* ca. 3.8× as long as whole leg IV.

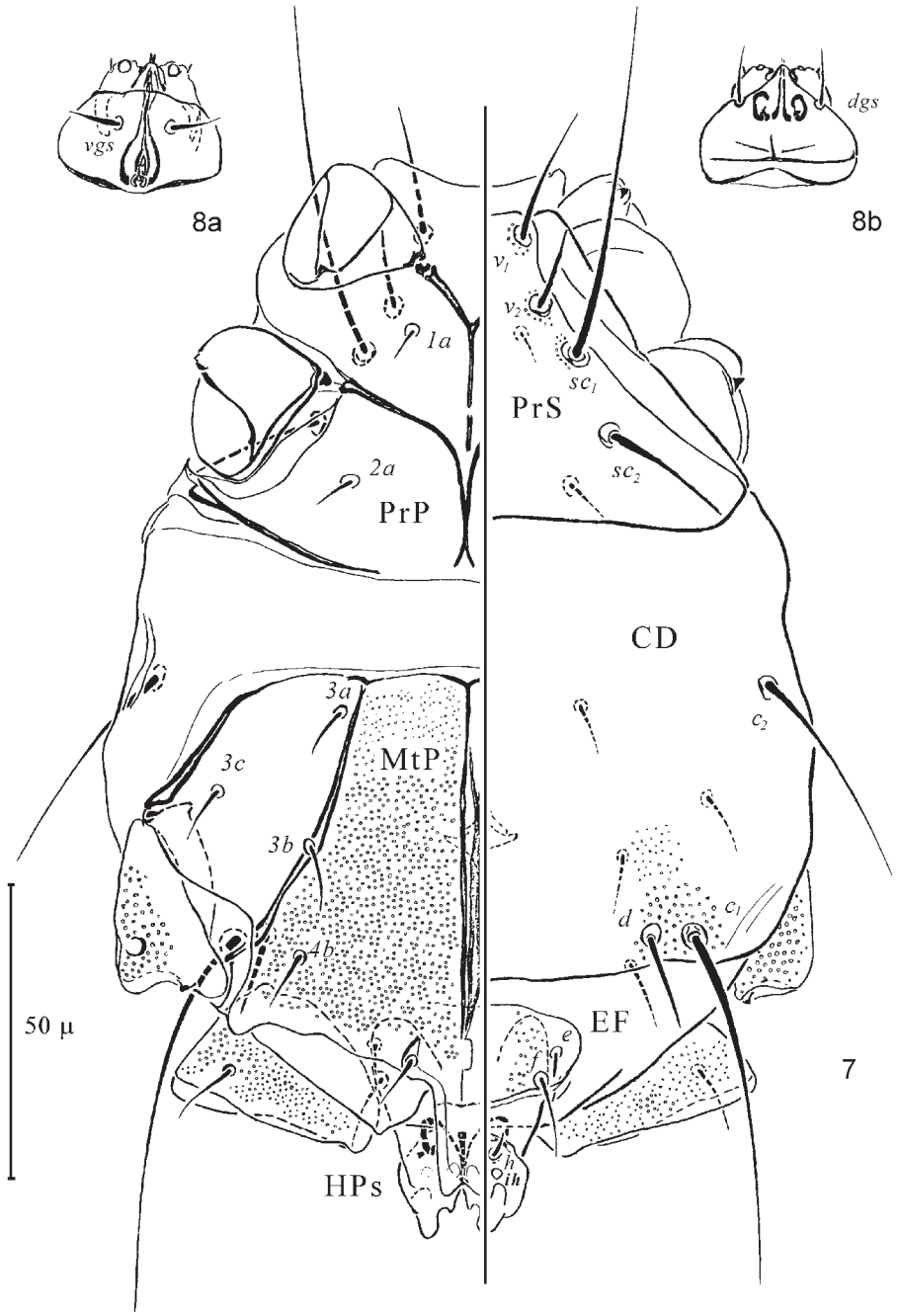
Measurements (holotype and 5 paratypes in parentheses): Body and tagmata: Length of body: 252 (183–252); length of idiosoma: 235 (166–235); width of idiosoma: 105 (90–110); length of gnathosoma: 28 (27–31); width of gnathosoma: 26 (25–28); length of pharynx: 10 (8–10); width of pharynx: 7 (6–8). Length of PrS: 77 (66–77); width of PrS: 102 (95–110). Lengths of setae: *dgs*: 14 (10–14); *vgs*: 10 (8–11); $v_1$: 24 (21–24); $sc_1$: 16 (14–16); $sc_2$: 39 (35–40); $c_2$: 36 (32–38); $c_1$: 15 (13–15); *d*: 12 (11–13); *e*: 8 (8–10); *f*: 5 (4–5); *h*: 42 (39–43). Distances between setae and stigmae: $v_1$-$v_1$: 24 (22–24); *sti-sti*: 31 (28–31); $sc_1$-$sc_1$: 43 (42–45); $sc_2$-$sc_2$: 50 (47–53); $c_2$-$c_2$: 98 (90–103); $c_1$-$c_1$: 52 (46–56); $c_1$-$c_2$: 25 (22–27); *d-d*: 47 (44–51); *e-e*: 69 (67–76); *f-f*: 27 (25–29); *e-f*: 21 (19–25); *h-h*: 40 (38–43). Lengths of ventral setae: *1a*: 7 (6–7); *2a*: 10 (8–10); *3a*: 6 (6– 7); *3b*: 11 (8–11); *3c*: 11 (9–11); *4b*: 8 (8–10); *ag*: 10 (10–12); *ps*: 16 (13–16). Distances between setae: *1a–1a*: 12 (11–13); *2a–2a*: 25 (22–29); *3a–3a*: 21 (18–24); *3b–3b*: 35 (33–38); *3c–3c*: 46 (42–49); *4b–4b*: 21 (18–22); *ag-ag*: 28 (21–28); *ps-ps*: 16 (16–20). Length of PrP: 60 (59–68); width of PrP: 109 (82–109). Ap. 1–1: 20 (16–20); ap. 2–2: 43 (38–43). Length of tegula: 16 (16–19); width of tegula: 25 (23–28). Leg segments and leg setae (lengths): Tbt I: 22 (19–22); Ta I $\omega$: 7 (5–7); $\phi_2$: 3 (3–4); $\phi_1$: 5 (5–6); *k*: 7 (7–8); Ta II $\omega$: 5 (4–5); Ta II *pl"*: 7 (7–7); Fege IV: 28 (25–30); Tbt IV: 11 (10–12); Fe *v'*: 10 (9–13); Ge *v"*: 17 (15–21); Tb *v'*: 38 (34–39); Ta *tc"*: 147 (135–154); Tb *v"* 9 (9–11).

Male (only one specimen was collected, in poor shape; doubtful character-states and measurements are indicated by question mark; Figs 7–12): Gnathosoma: similar to that of a female; differences in proportions may originate from distortion.

Idiosoma-dorsum (length:width ratio – 1.5:1); relative lengths of dorsal setae ($v_1$:$v_2$:$sc_1$:$sc_2$:$c_2$:$c_1$:*d*:*e*:*f*:*h*) : 1:0.8:2.7:1.2:2.2:3.2:0.8:0.3:0.7:0.2. Setae on PrS: $v_1$, $v_2$, $sc_2$ and $sc_1$ attenuate, pointed, with fine barbs; $v_1$ separated by a distance of 0.9× their lengths; $v_2$ the shortest on PrS, located between $v_1$ and $sc_1$. Setae $sc_1$ located at a mid-length of prodorsal shield, reaching with ca. one half their lengths beyond the posterior edge of prodorsal shield, placed in a distance of 0.7× their lengths each to another. Setae $sc_2$ located apart from the level of $sc_1$, but all on PrS aligned straight on each side. Setae $c_2$ not reaching with their tips to bases of $c_1$. The latter the longest on dorsum, located almost contiguous to bases of *d*; and in a distance of their 1.3× lengths to each other. Setae *d* short, reaching beyond the posterior edge of shield CD; separated by a distance of ca. 4.2× their lengths. Setae *e* short, stiff, pointed, *f* approximate in length to *d* but weaker; displaced in a distance of their 2.2× lengths. Cupules indiscernible. Genital capsule 1.2× as long as wide, with hyaline rim narrow and rather small. Setae *h* small but apparent. Accessory stylets weak, located in posterior half of genital capsule.

Idiosoma-venter: anteromedian apodeme connecting anteriorly with apodemes 1, interrupted slightly anteriad of the level of apodemes 2. Sejugal apodeme pronounced only laterally. All setae on venter slender, pointed. Coxal setae *la* located by a distance of over 3× their lengths each to another; setae *2a* displaced by a distance of more than their 6× lengths. Setae *3a* subequal in length to *3c,* separated by a distance of their 5× lengths (i.e. apparently smaller than that between *3b*), located by a distance of 2.7× their length to bases of *3b*. Setae *3b* separated by a distance of over 5× their lengths. Setae *3c* inserted posteriad of lateral parts of apodemes 3, in a distance of over 9× their lengths. Setae *4b* in a reciprocal distance of almost 6× their lengths. Aggenital setae equal in length to *4b*, located in a distance of 1.7× their length. Ventral metapodosomal plate with apodemes 3 and 4 joining anteriorly with each other and with posteromedial apodeme continuous, pronounced; anterior line of metapodosomal apodemes almost straight. Narrow-elongate tegula subrectangular in shape with terminal indentation. Dorsum covered with uniform, weak dimpled ornament, expressed more at anterolateral margins of PrS and posterolateral areas of segment CD and shield EF; ventral propodosomal plate smooth, sparsely dimpled ornamentation pronounced on all coxal fields IV, and adjacent areas of fields III.

Legs: Proportions of free segments of legs (I:II:III:IV) : 1:0.9:1:1.8. Chaetotaxy of leg I: 4–4–6(2$\phi$)–10(1$\omega$); leg II: 3–3–4–6(1$\omega$); leg III: 1(?)–3–4–5. Claw on tarsus I strong, hooked, as large as those of tarsi II and III. Seta *s* spine-like, less robust than setae *u'* of Ta II and III. Setae *u'* and *u"* weak. Tarsus ca. 1.5× as long as wide at the base. Two eupathidia (*p'* shorter, *p"* longer) apically on tarsus; one (*tc"* – the shortest) inserted slightly more proximally, and one (*tc'*-subequal to *p'*) proximally to transverse midline of the tarsus. Solenidion $\omega$ inserted near the base of segment, with small, striated head, smaller than Ta II $\omega$. One fastigial eupathidion (*ft'*) present near the $\omega$; *ft"* missing. Tibial solenidion $\phi_2$ smaller than $\phi_1$, famulus *k* about as long as $\phi_1$; located contiguous with solenidia. Genual *l'* not stronger than other genual setae, femoral *d* stouter than others, but not spine-like. Claws of leg II strong, hooked; empodium smaller than its stalk. Spine *pl"* strong, thorn-like, as large as the solenidion $\omega$. Seta *tc"* the longest on the tarsus, reaching half of its length beyond the apex of empodium. Solenidion $\omega$ larger than that on Ta I. All tibial, genual and femoral setae slender, Tb *l'* and Ge *v'* shortest on their segments. Seta Fe *l'*, very short. Claws and empodium of leg III as in II. Of setae flanking pretarsus *u'* very robust, *p'* and *u"* indiscernible. Seta *tc"* reaching well beyond the end of empodium, tarsal *tc'* and *pv'* attenuate, *pv"* short, robust, spine-like. Tibial setae *v'*, *v"* and *d* attenuate, reaching beyond the apex of tarsus, *l'* short, spine-like. Of two setae usually present on male femur III only *d* apparent; *v'* indiscernible, perhaps missing (?). Tarsal claw of




**Figs 7–8.** *Ununguitarsonemus tremulae* sp. n., male: 7 = idiosoma, 8 = gnathosoma: a – venter, b – dorsum

leg IV slightly curved, 1.8× as long as wide at the base. Tarsus connected movably with tibia, with three setiform setae (all subequal in length); *tc"* inserted on the short cylindrical protrusion. Tibial solenidion $\phi$ weakly tapering, smooth, over twice longer than solenidia Tb I $\phi_2$ and Ta II $\omega$. Seta Tb *v'* attenuate, long, 0.8× as long as Fege IV. Femorogenu IV ca. 2× as long as wide at the base, with small subcircular protrusion on the adaxial ridge; setae Ge *v'* the longest and Fe *v'* the shortest, all attenuate. Seta Tr *v'* as long as Fe *v'*.

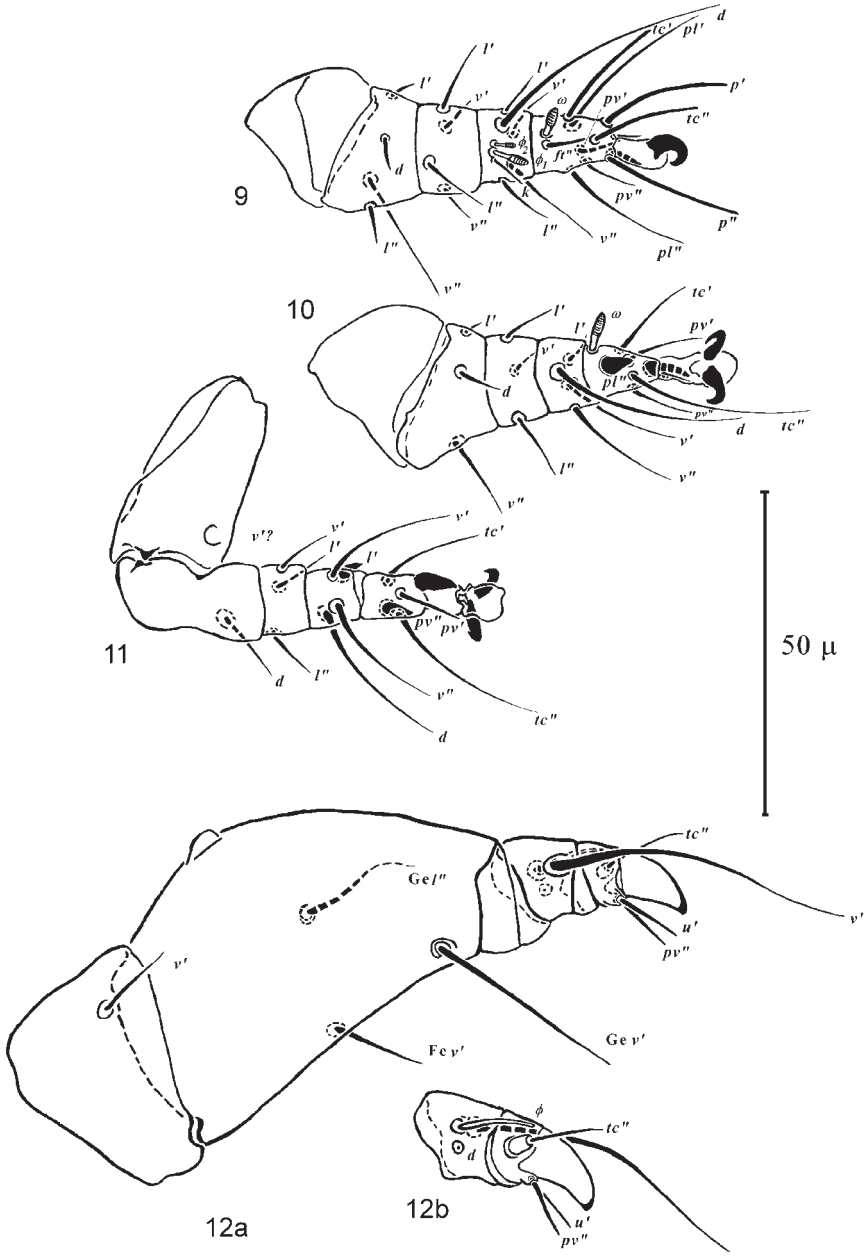
Measurements (one paratype): Body and tagmata: Length of body: 195; length of idiosoma: 180; width of idiosoma: 123; length of gnathosoma: 23; width of gnathosoma: 26; length of pharynx: 7; width of pharynx: 6. Length of PrS: 55; width of PrS: 95. Lengths of setae: *dgs*: 10; *vgs*: 8; $v_1$: 19; $v_2$ 16; $sc_1$: 52; $sc_2$: 23; $c_2$: 41; $c_1$: 61; *d*: 16; *e*: 5; *f*: 13; *h*: 3. Distances between setae: $v_1$-$v_1$: 17; $v_2$-$v_2$: 26; $sc_1$-$sc_1$: 37; $sc_2$-$sc_2$: 50; $c_2$-$c_2$: 103; $c_1$-$c_1$: 79; $c_1$-$c_2$: 47; *d-d*: 67; *e-e*: 32; *f-f*: 28; *e-f*: *6; h-h*: 11. Lengths of ventral setae: *1a*: 6; *2a*: 6; *3a*: 8; *3b*: 9; *3c*: 10; *4b*: 10; *ag*: 10. Distances between setae: *1a-1a*: 19; *2a-2a*: 38; *3a-3a*: 41; *3b-3b*: 54; *3c–3c*: 84; *4b–4b*: 58; *ag–ag*: 17. Length of PrP: 50; width of PrP: 88; ap. 1–1: 17; ap. 2–2: 50. Length of tegula: 20; width of tegula: 11; length of copulatory complex: 35; width of copulatory complex: 30. Leg segments and leg setae (lengths): Tbt I: 12; TaI $\omega$: 4; $\phi_2$: 3; $\phi_1$: 5; *k*: 6; TaII $\omega$: 5; TaII *pl"*: 5; Fege IV length: 66; width: 37; Tb and Ta IV: 19; Fe *v'*: 14; Ge *v'*: 36; Ge *l"*: 18; Tb *v'*: 55; Tb $\phi$: 13; terminal claw length: 14; basal width: 8.

Larva (Figs 13–17): Gnathosoma: Similar to that of a female, but slightly shorter than wide basaly, and with setae *dgs* as long as *vgs*.

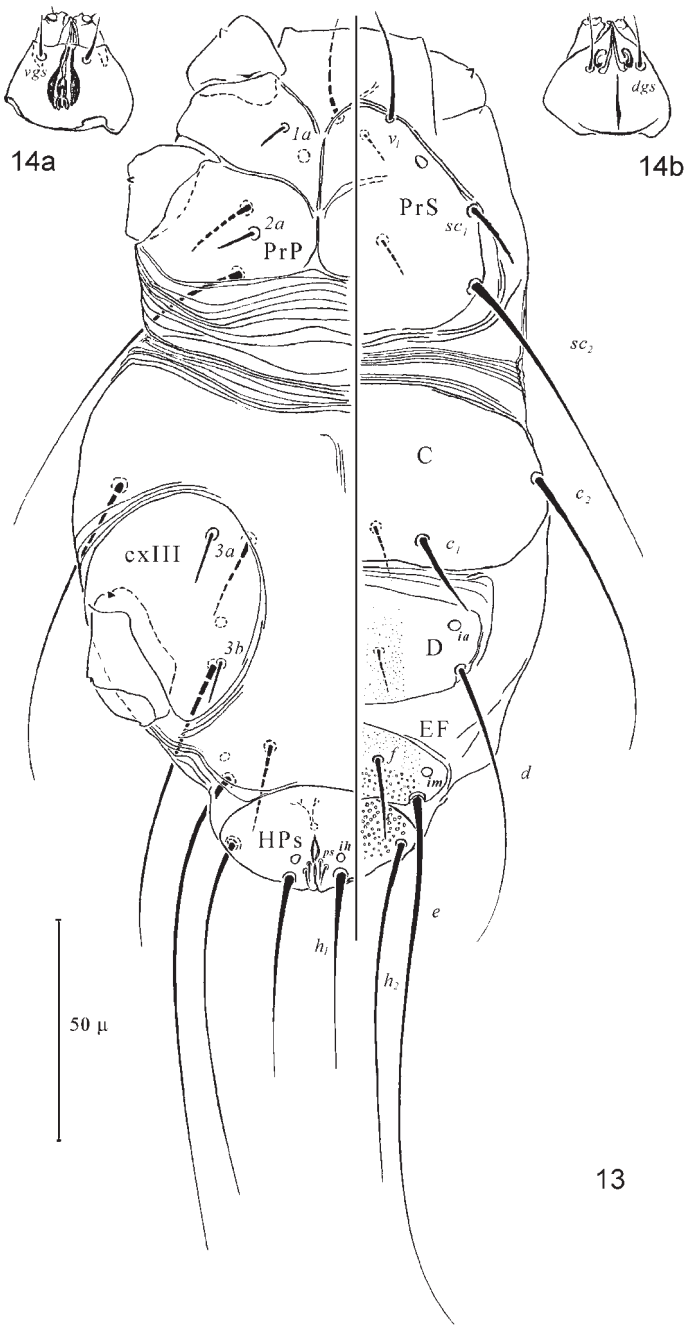
Idiosoma-dorsum (length: width ratio – 1.9:1); relative lengths of dorsal setae ($v_1$:$sc_2$:$c_2$:$c_1$:*d*:*e*:*f*:$h_1$:$h_2$) : 1:0.7:2.7:3.0:0.7:2.8:4.3:0.8:3.3:1.7. Prodorsal shield (PrS) approximately 1.2× as wide as long. Setae $v_1$ slender, slightly barbed in a distance of 0.5× their length each to another. Setae $sc_1$ stiff, bluntly ended, barbed, the shortest on dorsum; setae $sc_2$ located on posterolateral corners of PrS, reaching with 0.9× their length beyond the posterior edge of prodorsal shield, separated by a distance of about 0.8× their lengths. Setae $c_2$ slender, reaching with their tips over twice their length beyond bases of $c_1$. Setae $c_1$ stiff, barbed, sharply pointed, in a distance of ca. 2× their lengths. Setae *d* subequal in length to $sc_2$ and $c_2$, located in a distance smaller (0.8×) than their lengths; cupules *ia* located anteriad of *d* bases. Setae *e* the longest on dorsum, located apparently posteriorly to the level of *f*; by a distance roughly 0.4× their lengths each to another; *f* barbed, stiff but tapering, pointed, in a reciprocal distance slightly larger than their lengths. Cupules *im* present anterolateraly of *e* bases. Both setae $h_2$ and $h_1$ very long, attenuate; $h_2$ displaced by a distance of one half their lengths; $h_1$ shifted to venter, over 4× longer than a distance between their bases.

Idiosoma-venter: apodemes 1 and 2 and anteromedial apodeme discernible though weakly developed. Ventral setae *1a* through *3b* stiff, weakly tapering, blunt. Setae *1a* the shortest, located posteriad of apodemes 1, by a distance of ca 2.3× their lengths; Setae *2a* located posteriad of apodemes 2, by a distance of ca. 3× their length. Ventral propodosomal plate with undefined anterior edge between apodemes 1 and bi-convex posteriorly. Setae *3a* the longest, separated by a distance from bases of *3b* over twice larger than their length. Two pairs of minute, slender setae *ps* symmetrically inserted between bases of $h_1$. A pair of cupules *ih* visible nearing anteriorly bases of setae $h_1$. Dorsal shields PrS and C smooth, D with weak punctuated ornament, that getting coarser and more sparse toward posterior edge on EF, and reaching a final form of large sparsely arranged dimples on HPs dorsum. Ventral plating smooth; divided by large areas of densely striated pleura.

Legs: Proportions of free segments of legs: (I:II:III:IV) : 1:0.8:0.8. Chaetotaxy of leg I: 4–4–6(1$\phi$)–7(1$\omega$); leg II: 3–3–4–6(1$\omega$); leg III: 2–3–4–5. Claws of praetarsus I hooked, smaller than those of legs II and III. Spine-like seta *s*, similar to *u'* on tarsi II and III. Tarsus ca. 1.5× longer than wide at the base. Eupathidion *tc'* placed near transverse midlength of tarsus, longer than *tc"* located subapically. Solenidion $\omega$ slightly larger than Ta II $\omega$. Solenidion $\phi_1$ clearly shorter than famulus *k*. Seta Tb I *d* the longest of all on leg I, as long as free segments of the leg. All setae on genu tapering,

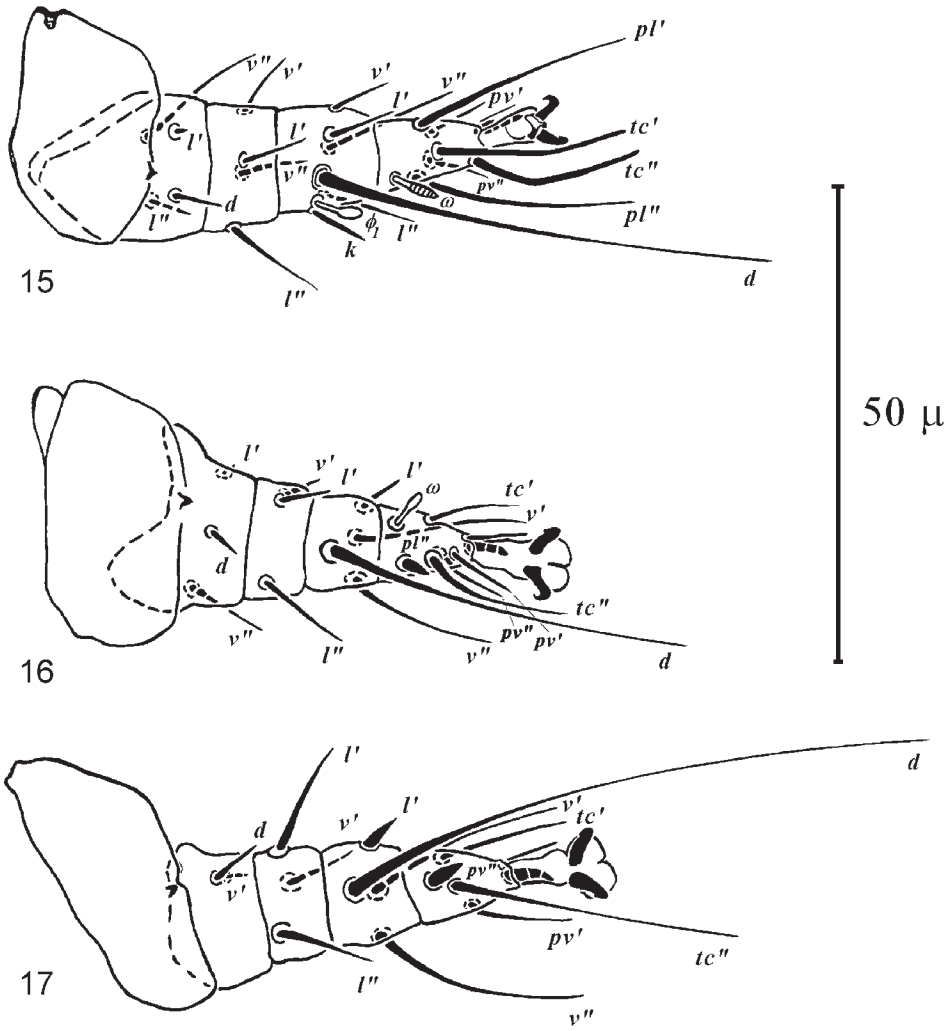



**Figs 9–12.** *Ununguitarsonemus tremulae* sp. n., male legs: 9 = leg I, dorsal aspect, 10 = leg II; dorsal aspect, 11 = leg III, ventral aspect, 12a = leg IV, ventral aspect, 12b = tibia and tarsus, dorsal aspect




**Figs 13–14.** *Ununguitarsonemus tremulae* sp. n., larva: 13 = idiosoma, 14 = gnathosoma: a – venter, b – dorsum

slender, pointed. Seta *l'* on femur stout, pointed, not longer than the diameter of its alveolus; *d* small, stiff, pointed. Claws and empodium leg II medium-sized. Spine *pl"* shorter than solenidion ω, located almost at the level, but as far as its length to it. Seta *tc"* ca. 1.7× longer than others on tarsus, reaching to the tip of empodium. Tibial *d* the longest of all on leg II, as long as free segments of leg II. Seta *l'* on femur very tiny, hardly discernible; *d* stiff, short. Claws of leg III as those on leg II. Seta *tc"* reaching with half-length beyond the empodium; *pv"* spine-like. Tibial setae *d*, *v'* and *v"* attenuated, slender, *d* being the longest of all on legs, *l'* short, spine-like. Femoral seta *d* stiff, *l'* very tiny, hardly discernible.




**Figs 15–17.** *Ununguitarsonemus tremulae* sp. n., larva legs, dorsal aspects: 15 = leg I, 16 = leg II, 17 = leg III

Measurements (5 paratypes): Body and tagmata: Length of body: 196–243; length of idiosoma: 170–215; width of idiosoma: 88–113; length of gnathosoma: 25–27; width of gnathosoma: 28–30; length of pharynx: 9–10; width of pharynx: 6–7. Length of PrS: 50–52; width of PrS: 53–64. Lengths of setae: *dgs*: 9–10; *vgs*: 9–10; $v_1$: 23–25; $sc_1$: 14–17; $sc_2$: 61–68; $c_2$: 67–73; $c_1$: 16–18; *d*: 57–80; *e*: 92–105; *f*: 18–22; $h_2$: 75–84; $h_1$: 35–47. Distances between setae: $v_1$-$v_1$: 10–12; $sc_1$-$sc_1$: 46–49; $sc_2$-$sc_2$: 47–57; $c_2$-$c_2$: 80–92; $c_1$-$c_1$: 35–39; $c_1$-$c_2$: 26–30; *d-d*: 53–56; *e-e*: 36–42; *f-f*: 20–24; *e-f:* 11–12; $h_2$-$h_2$: 36–37; $h_1$-$h_1$: 8–12. Lengths of setae: *1a*: 8–9; *2a*: 9–10; *3a*: 11–13; *3b*: 9–11; *ps:* 3–4. Distances between setae: *1a-1a*: 18–20; *2a-2a*: 26–29; *3a-3b*: 26–29. Length of HPs: 22–26; width of HPs: 39–48. Length of PrP: 32–35; width of PrP: 62–70. Leg segments and leg setae: Ta I: 10– 12; Ta I $\omega$: 4–5; $\omega_1$: 4–5; *k*: 5–7; Ta II $\omega$: 3–4; TaII *pl"*: 3.

Locus typicus: Ukraine, Yalta (Crimea), under the bark of *Populus tremula* heavily infested with cerambycid larvae of undetermined species; 02. 11. 1998; leg. A. A. KHAUSTOV.

The type series consist of holotype female, 70 female, one male and seven larval paratypes. The holotype female and four female paratypes are in one slide (together with one undetermined tarsonemid *Dendroptus* female); holotype female being the only specimen positioned perfectly parallel to the longer side of slide; 54 female paratypes with same data as holotype, 16 female paratypes collected in l.t. 05. 11. 1998; one male and two larval paratypes with same date as holotype, five larval paratypes collected 05. 11. 1998; all specimens collected at the locus typicus.

Deposition of type material: holotype and 22 female paratypes, male paratype, six larval paratypes: Department of Animal Taxonomy and Ecology, A. Mickiewicz University, Poznań, Poland; two female paratypes: United States National Museum, Beltsville, Maryland; three female paratypes: Canadian National Collection, Ottawa, Canada; three female paratypes: Hungarian Natural History Museum, Budapest, Hungary; three female paratypes: Zoological Museum, Hamburg University, Germany; 37 female and one larval paratypes: Nikita Botanical Garden, Yalta, Ukraine.

## DISCUSSION

Mites of the genus *Ununguitarsonemus* are still infrequently known. As indicated by LINDQUIST (1986) species of the genus are spread in temperate and tropical sites in North and South Americas, Eastern Asia and Oceania. Two latest consequent findings in Ukraine (MAGOWSKI *et al.* 1998, and this paper) combined with previous record seem to suggest that the genus is generally associated with warm climate zones. The relatively scarce occurrence together with the very primitive morphology may provisionally be explained as a result of advanced age of the taxon, accepted as a very early outshoot of tarsonemid phylogenesis.

While the *U. tremulae* association with cambio and/or xylophagic insects, has not been proven, it is very likely. The other three species of the genus were associated with beetles and the presence of collected material in the subcortical habitat along with cerambycids is indicative.

*

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