

Revision of Oribatid mites from BERLESE's collection. III. Redescription
of species from *Mesoplophoroidea* and *Euphthiracaroidea*
(*Acari*, *Oribatida*)

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ABSTRACT. Thirteen species described by BERLESE of superfamilies *Mesoplophoroidea* and *Euphthiracaroidea* are redescribed. Four species and subspecies are synonymized.

INTRODUCTION

In April 1990 and May 1991 I had an opportunity to study some type species of ptychoid *Oribatida* from BERLESE's collection deposited in Instituto Sperimentale per la Zoologia Agraria (Cascine del Riccio near Florence). After two papers on the species of the superfamily *Phthiracaroidea* (NIEDBAŁA 1991, 1997) the following work includes redescrptions of the species which belong to *Mesoplophoroidea* and *Euphthiracaroidea*.

Totally BERLESE described 13 species and subspecies in these superfamilies:

1. *Mesoplophora discreta* BERLESE, 1913
2. *Mesoplophora Michaeliana* BERLESE, 1904
3. *Mesoplophora pantotrema* BERLESE, 1913
4. *Phthiracarus (Phthiracarus) perexiguuus* BERLESE, 1920
5. *Tritia aequipunctata* BERLESE, 1923
6. *Tritia berlesei* (MICH.) v. *breviseta* BERLESE, 1923
7. *Phthiracarus cribarius* BERLESE, 1904
8. *Tritia lentula* (K.) v. *hyeroglyphica* BERLESE, 1916
9. *Phthiracarus minimus* BERLESE, 1904
10. *Tritia nuda* BERLESE, 1887
11. *Phthiracarus punctulatus* BERLESE, 1913
12. *Phthiracarus reticulatus* BERLESE, 1913
13. *Hoploderma vestivum* BERLESE, 1913.

In most cases I designate lectotypes and paralectotypes.

DESCRIPTIONS

MESOPLOPHOROIDEA

MESOPLOPHORIDAE

***Mesoplophora michaeliana* BERLESE, 1904**

(Figs. 1-9)

Mesoplophora Michaeliana BERLESE, 1904

Phthiracarus (Phthiracarulus) perexiguus BERLESE, 1920

Species described from Italy. Its redescription is included in a paper of NIEDBALA (1984). In catalogue of CASTAGNELI, PEGAZANO (1985) a slide 24/36 is marked as a type, based on BERLESE's record from his original catalogue (*Mesoplophora Michaeliana* terricio solterraneo orto Giappone Firenze). HAMMEN (1959) mentions the slide as No 26/36. I suspect this is simply an error and he meant slide No 24/36. MAHUNKA (1980) who studied the type, gives No 20:15 which, I think, is also an error.

Measurements of type: prodorsum: length 165, width 125; notogaster length 275, width 270 (after BERLESE (1904): length of body 420, width 250).

Measurements of a specimen from slide 209/20: prodorsum length 130, width 105; notogaster: length 260, width 210.

Measurements after BERLESE (1904): length of body 340, width 210.

Body colour yellow.

The type specimen is broken, placed laterally and slightly twisted ventral side up, generally poorly visible. I have not seen barbs on sensillus. There are also 9 slides with specimens of this species in the collection, all specimens originate from Florence but from various localities. Sensillus of the specimen on slide 70/6 (*Mesoplophora michaeliana* BERL. Boboli terricio sotterraneo)(paralectotype) also has no barbs. However a specimen on slide 214/2 (*Mesoplophora michaeliana* BERL. Firenze - Giardino R.S.E. soltera)(paralectotype) has visible barbs on sensillus, also two setae on anal plate are visible.

Sensillus covered with spines is also clearly visible in deutonymph of this species on slide 209/19 (*Phthiracarus (Phthiracarulus) perexiguus* BERL. tipico Firenze Giardino R.S. sottera)(paralectotype). Also four posterior setae, thicker than the rest and covered with tiny strong spines are visible. Another specimen of deutonymph on slide 209/20 (*Phthiracarus (Phthiracarulus) perexiguus* BERL. tipico Firenze Giardino R.S. sottera)(paralectotype) is placed ventral side up. On fig. 9 not all genital and anal setae could be noticed.

APOPLOPHORIDAE

Apoplophora pantotrema (BERLESE, 1913)

(Figs. 10-13)

Mesoplophora pantotrema BERLESE, 1913*Mesoplophora discreta* BERLESE, 1913

Description of this species can be found in AOKI (1980) and NIEDBALA (1984).

Species described from Java. As HAMMEN (1959) already noted slide 137/26 (*Mesoplophora pantotrema* BERL. tipico Samarang - (Giawa) Dameosoma 10)(lectotype) contains a deutonymph of the species. Its prodorsum is almost the same as in adult. Setae ro, le, in and sensillus densely barbed. The specimen is placed ventral side up, and no more details are visible. Another specimen No 137/24 (*Mesoplophora pantotrema* BERL. supina tipico Samarang (Giava))(paralectotype) is also placed ventral side up and is a deutonymph. Genital and anal plates are fused, and there are only two setae on anal plate. Slides 137/25 and 137/26 (paralectotype) contain specimens even more poorly preserved and they bear labels "typico".

Body colour brown, surface smooth.

Measurements of paralectotype No 137/24: prodorsum: length 210, width 200; notogaster: length 325, width 275 (after BERLESE: length of body 330-480, width 200-235).

Four other slides contain "*M. discreta*". Only two of them are suitable for study. 137/23 (*Mesoplophora discreta* BERL. di lato tipico - Giava 19-10 Samarang (paralectotype) - specimen badly damaged. Barbs on setae are hardly visible. Two anal setae can be observed. Slide 137/21 (*Mesoplophora discreta* BERL. Giava 11) - prodorsum visible (length 245 (after BERLESE for "*discreta*": length of body 420, height 290). Barbs on sensillus not visible, but setae ro, le, in, as well as gastronotal setae. The presence of two anal setae proves that "*M. discreta*" is also a nymph, and not an adult as stated by HAMMEN (1959).

EUPHTHIRACAROIDEA

ORIBOTRITIIDAE

Indotritia breviseta (BERLESE, 1923)

(Figs. 14-16)

Tritia berlesei (Mich.) var. *breviseta* BERLESE, 1923

Subspecies described from East Africa. HAMMEN (1959) considered it as a species. Specimen on slide 216/27 (*Tritia berlesei* (MICH.) v. *breviseta* BERL. Africa orient. ALLUAUD et JEANNEL) is well preserved and should be considered lectotype.

Measurements: prodorsum: length 551, height 194; notogaster: length 1122, height 745. Berlese did not give measurements.

Body colour brown.

Prodorsum with 2 carinae, lower one long and strong, upper one shorter and

weaker. Setae delicate, short, almost equal in length; setae le more delicate than other setae. Setae in placed perpendicularly on the surface. Sensillus broken.

Notogaster with 14, moderately short but strong and rough setae; c1, c2 remote from anterior margin, c3 closer to margin, thinner and longer. Vestigial setae fl dorsad of setae h1, lyrifissures ia, im, ip, ih, ips present.

Venter. Palp five segmented, genitoaggenital plate with 9 genital and 2 aggenital setae. Anal plate with 2 setae, adanal with 3 setae.

Legs tridactylous.

***Mesotritia nuda* (BERLESE, 1887)**

(Figs. 17-41)

Tritia nuda BERLESE, 1887

Mesotritia piffli MÄRKEL, 1964 **syn.nov.**

Mesotritia elastica SERGIENKO, 1988 **syn.nov.**

Species described from Italy. Slide No 39/25 (*Tritia nuda* BERL. tipico Padova R. Orto Botanico) (lectotype) is broken and hardly any character is visible. I have made illustrations from two other slides (paralectotypes) 215/37 (*Tritia nuda* BERL. scudi ventrali Firenze) and 215/34 (*Tritia nuda* BERL. Firenze - Cascine legno castagno).

Body colour light brown, surface smooth.

Measurements of 215/34: prodorsum: length 365, height 135; notogaster: length 680, height 430 (after Berlese length of body 800).

Prodorsum. Lateral carina long, single. Sensillus narrow and spindle-shaped, with several strong spines. Setae smooth, long, filiform, setae ro distal to le, ro>le>in.

Notogaster. 14 not very long setae, c1< c1-d1. Setae of row c remote from anterior margin, c1 placed far from the margin, c3 the closest to the margin; fl dorsad of h1.

Ventral. Palp three segmented with following chaetotaxy: 2-2-8(1). Genital plate with six, rarely five genital setae; two aggenital setae. Anal plate with two, adanal with three setae, seta an1 placed between setae ad1 and ad2. Lyrifissure iad slightly ventrad of an2. Leg tridactylous.

More detailed descriptions of the species can be found in MÄRKEL (1964) under *M. piffli* and SERGIENKO (1988) under *M. elastica*. I have seen a paratype: "*Mesotritia piffli* 374, paratipi" and paratype "N 2130 W, 3.07.1986" *Mesotr. elastica* SERGIENKO, 1988. Despite SERGIENKO's (1988) reservations, her *M. elastica* is identical with *M. piffli* in leg chaetotaxy. Genu I with 4 setae, not 5 as stated by SERGIENKO (1988).

EUPHTHRACARIDAE

***Euphtharacarus cribrarius* (BERLESE, 1904)**

(Fig. 42)

Phtharacarus cribrarius BERLESE, 1904

There is a good description of this species in MÄRKEL (1964).

There is no type specimen of the species in the collection. Nevertheless two specimens on slide 16/24 (*Tritia cribraria* BERL. n.sp. Norvegia Thor 3) (paralectotypes) undoubtedly represent the species.

Measurements: prodorsum: length 355, height 125; notogaster: length 680, height 465 (after BERLESE notogaster: length 730, height 500).

Body colour brown, surface strongly punctured.

Prodorsum with 2 lateral carinae. Sensillus setiform with tiny spines in distal half; in, le almost perpendicular to the surface, ro curved, long, almost parallel to rostrum distally.

Notogaster with 14 strong, not very long gastronotal setae, c1 < c1-d1, row c remote from anterior margin, c3 closest to margin; fl at the same level as h1; 5 lyrifissures present.

Ventral. Seven genital setae evident (I suppose there are nine but I have not noticed them), two aggenital setae, ag1 half the length and thickness of ag2, three anal and three adanal setae, an1 and an2 long, smooth and flagellate, the rest shorter, stronger, covered with tiny barbs.

***Euphthiracarus (Euphthiracarus) monodactylus* (WILLMANN, 1919)**

(Figs. 43-47)

Pseudotritia monodactyla WILLMANN, 1919

Tritia aequipunctata BERLESE, 1923

Description of the species given by MARKEL (1964). *Tritia aequipunctata* described from Italy is a synonym of *E. monodactylus* as stated by HAMMEN (1959), based on structure of integument, shape of sensillus and notogastral setae and monodactylous legs.

Tritia aequipunctata is represented in the collection by two slides. 216/25 (*Tritia aequipunctata* BERL. tipico Firenze - Cascine legno castagna)(lectotype) is in a twisted position, and is difficult to study. Slide 225/36 (*Tritia aequipunctata* BERL. Firenze cotipo)(paralectotype) is in much better condition. Measurements of paralectotype: prodorsum: length 237, height 115 (after BERLESE; length of body 550, height 350).

Body colour brown.

***Euphthiracarus (Euphthiracarus) punctulatus* (BERLESE, 1913)**

(Figs. 48-52)

Phthiracarus punctulatus BERLESE, 1913

Species described from Italy, in the collection represented by slide 140/20 (*Tritia punctulata* BERL. Tipico Cansiglio)(lectotype), well preserved.

Measurements: prodorsum: length 375, height 140, sensillus 135; notogaster: length 775, height 581 (after BERLESE: length of body 1120, height 570).

Body colour brown. Integument with puncta, according to BERLESE pits are distant one from another.

Prodorsum. Two lateral carinae not reaching bothridium. Sensillus similar to setae on notogaster, long, narrow, slightly inflated, covered with tiny spines in distal half.

Setae in, le, ro thick, strong, long, covered with spines in distal half, with ro least covered; in>le>ro; setae ex tiny and delicate.

Notogaster with 14 setae, strong as le and in, covered with spines in distal half, not very long, c1<c1-d1. Setae of row c remote from anterior margin, c3 closest to the margin. Vestigial setae f1 above h1. Lyrifissures ia, im, ip, ih ips present.

Ventral. Seven genital setae evident but possibly more present. Also I have not noticed second aggenital seta. Anoadanal plate with arrangement of setae typical for the genus. Three anal, three adanal setae, an3 moderately long.

***Euphthiracarus (Euphthiracarus) reticulatus* (BERLESE, 1913)**

(Figs. 53-56)

Phthiracarus reticulatus BERLESE, 1913

Species described from Italy, in the collection represented by three slides: 140/16 (*Phthiracarus reticulatus* BERL. tipico, Tiarno - musco)(lectotype), 216/28 (*Tritia reticulata* BERL. Tiarno musco)(paralectotype) and 31/22 (*Tritia reticulata* BERL. Tiarno legno marcia)(paralectotype).

Body colour light brown, structure mosaic.

Measurement of lectotype: prodorsum: length 420, height 160, sensillus 120, notogaster: length 806, height 551 (after BERLESE: length of body 1400, height 659).

Prodorsum with two lateral carinae, upper one stronger and longer. Sensillus setiform, thick, covered with spines distally. Setae in, le, ro similar to sensillus, strong, long, perpendicular, covered with spines distally. Left seta le in lectotype of quite different shape, smooth and spiniform (an anomaly?). Setae ex smooth, short.

Notogaster with 14 setae, c1<c1-d1, row c remote from anterior margin, vestigial setae f1 above h1, all notogastral lyrifissures present.

Ventral. Genitoaggenital plate with 8 genital and 2 aggenital setae. Anoadanal plate with 3 anal and 3 adanal setae. Seta an3 long.

The species differs from *E.(E.) punctulatus* only in having mosaic structure of body surface and slightly longer setae.

The variability of the length of setae and structure of body surface is so far unknown. There is a possibility that *E.(E.) punctulatus* is a young, weaker coloured specimen of *E.(E.) reticulatus*.

***Microtritia minima* (BERLESE, 1904)**

(Figs. 45-47, 57-61)

Phthiracarus minimus BERLESE, 1904

Microtritia xilophila SUBIAS, 1977, **syn. nov.**

This is a quite common species, its identity usually raises no doubts, described from Italy.

I have studied slides: 216/40 (*Tritia minima* BERL. Firenze Boboli humus sottera)(lectotype) and 216/37-39 (paralectotypes) with the same labels.

Body colour light brown.

Measurements of the specimen 216/40: prodorsum: length 150, height 130 (after BERLESE: length of body 320, height 190).

Prodorsum with long lateral carina. Triangular scale over bothridium, setae very tiny, ro close to each other, sensillus long with inflated head, at its distal end blunt, with tiny setae. Notogaster with 14 tiny, notogastral setae, c1-c3 remote, fl above h1, five lyrifissures present.

Ventral. Genitoaggenital plate with four genital setae, two aggenital setae. Anoadanal plate with three anal and three adanal setae, lyrifissure iad close to intermediate cleft.

I have depicted side view of prodorsum of the specimen 216/40, setae ro and in were invisible.

Microtritia xilophila SUBIAS 1977 is a synonym of this species. According to Subias the only feature distinguishing these two species is presence of fields on prodorsum. However, many specimens of *M. minima* from various habitats possess such fields and certainly this feature has no taxonomic value.

***Rhysotritia ardua* (C.L. KOCH, 1841)**

(Fig. 62)

Tritia lentula (K.) var. *hyeroglyphica* BERLESE, 1916 **syn.nov.**

Tritia lentula hyeroglyphica described from Somalia, is represented in the collection by several slides, usually well preserved, among others: 184/44 (*Tritia lentula* (KOCH) v. *hieroglyphica* tipico Somalia italiana foci del Ciuba legni marci (PAOLI 1913)(lectotype for *Tritia lentula hyeroglyphica*), also slides 216/10, 184/45 bis and 25/12 (*Phthiracarus lentulus terrico di castagno* Firenze).

Body colour light brown.

Measurements of specimen from slide 184/44: prodorsum: length 225, height 85, notogaster: length 475, height 315 (after BERLESE: length of body 540, height 340).

All the analysed character states, especially shape of sensillus, its length, presence of lateral carina on prodorsum, shape and placement of notogastral setae, arrangement of setae on genitoaggenital and anoadanal plate, 2 claws on tarsus of leg I, 3 claws on tarsi of legs II-IV clearly indicate that these are specimens of *R. ardua*.

***Rhysotritia vestita* (BERLESE, 1913)**

(Figs. 63-64)

Hoplooderma vestitum BERLESE, 1913

Species described from Java, represented in the collection by two slides: 141/18 (*Hoplooderma vestitum* BERL. t, tre unghie tipico Samarang, Giava)(lectotype) and 141/19 (*Hoplooderma vestitum* BERL. cotipo un'unghia ! Samarang, Giava)(paralectotype) and 141/17 (*Tritia vestita* BERL. cotipo Sarang Giava 11), 141/21 (*Hoplooderma vestitum* BERL. cotipo Giava t, un unghia e tre unghie). All slides well preserved, only 141/17 in poor condition, hardly anything is visible.

Measurements of lectotype: length of prodorsum 255, length of notogaster 635 (after BERLESE length of body 640, height 370).

Prodorsum with features very similar to *R. ardua*. Also sensillus of similar shape. Only lateral carina bifurcated at its distal end.

Notogaster with shape and arrangement of setae similar to *R. ardua*.

Ventral. Palp 3 segmented, genitoaggenital plate with three genital and two aggenital setae. Anoadanal plate with typical three anal and three adanal setae.

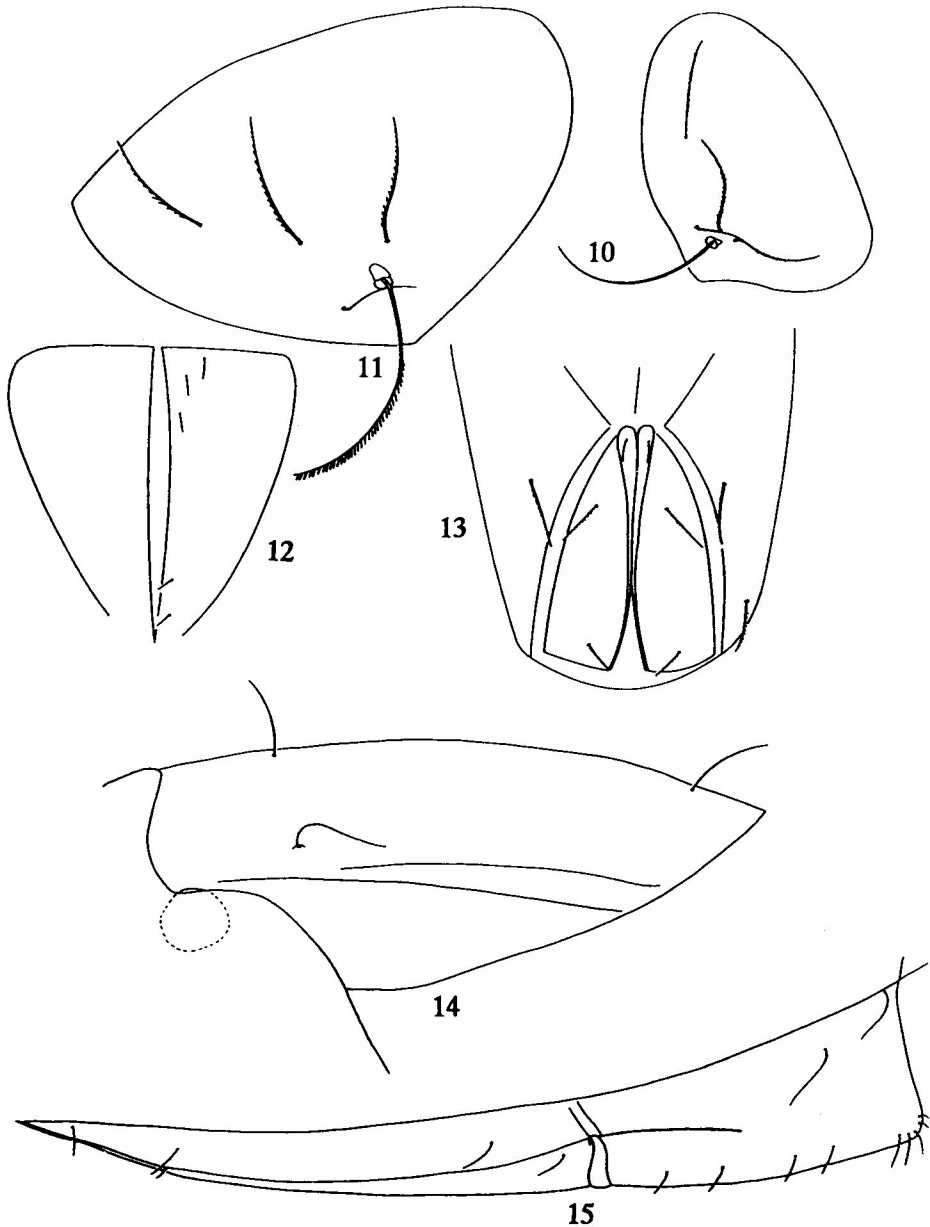
Legs. Chaetotaxy and solenidiotaxy of femur, genu, tibia I: 3-4(2)-5(1), II: 4-3(1)-4(1), III: 2-2(1)-3(1), IV: 1-2-2(1). Dorsal setae on genu and tibia thick, covered with small setae. Tarsus I with 2 claws, tarsi II-IV with 3 claws. However tarsi of paralectotype 141/19 monodactylous.

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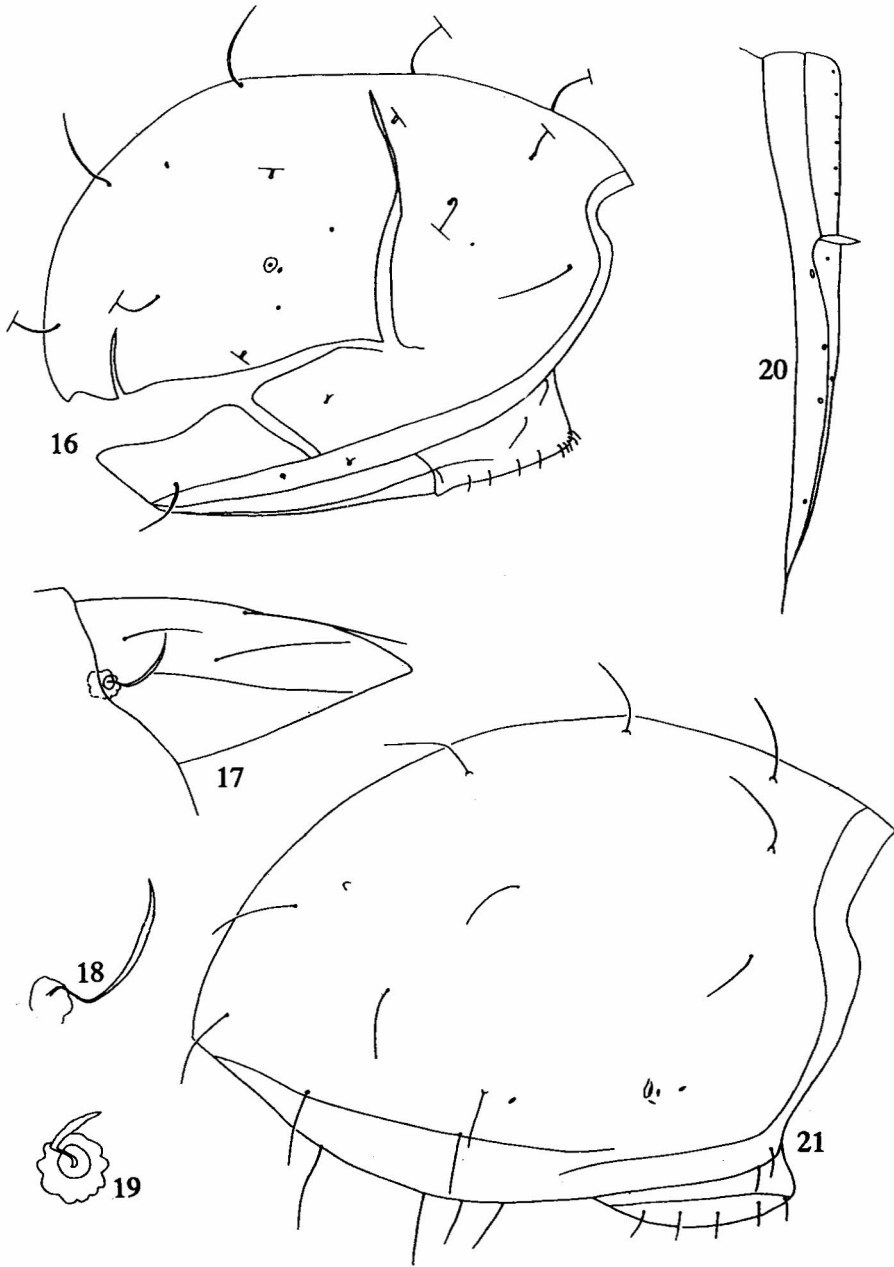
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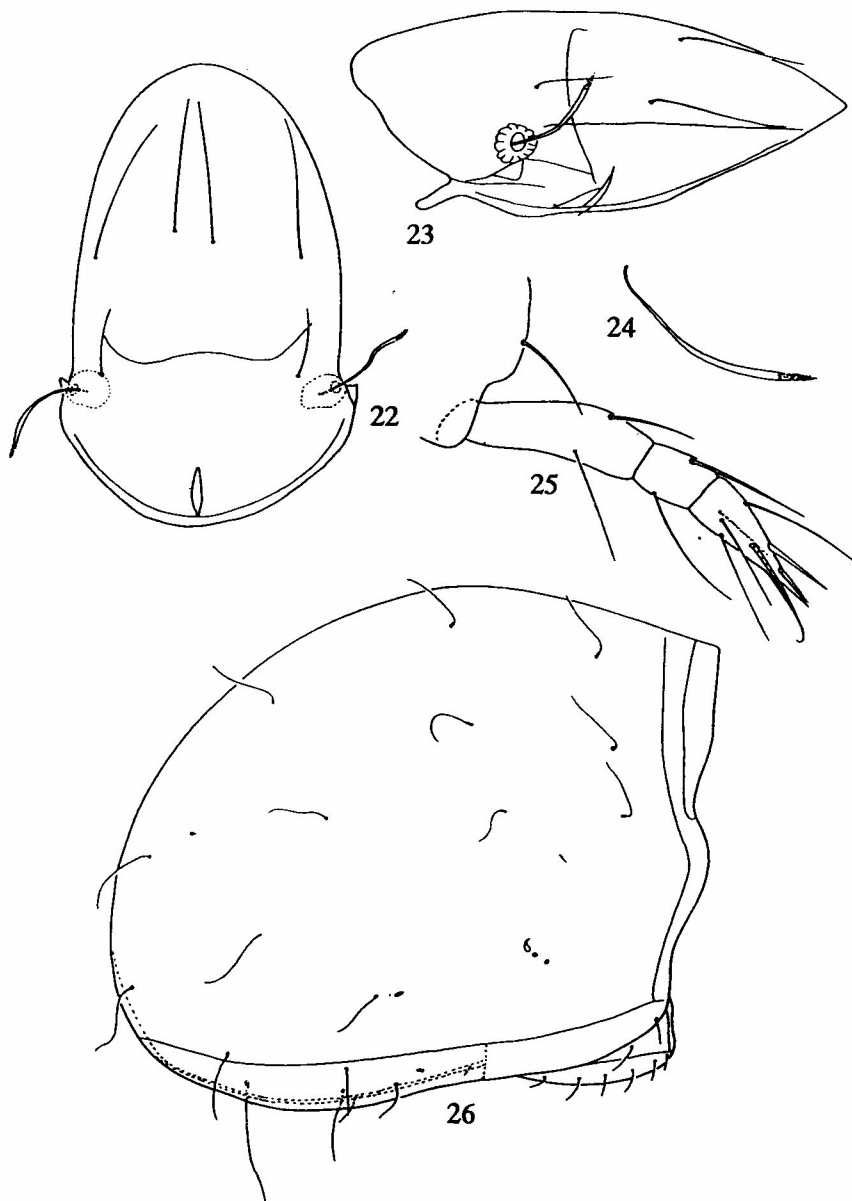
1-5. *Mesoplophora michaeliana* BERLESE, 1904: 1 - prodorsum, lateral view (slide 70.6), 2 - ventral region (slide 70.6), 3 - anal plate (slide 214/2), 4 - sensillus left (slide —24/36), 5 - sensillus right (slide 214/2). 6-9. *Phthiracarus* (*Phthiracarulus*) *perexiguus* BERLESE: 6 - lateral view of body (slide 209/19), 7 - e1 seta (slide 209/19), 8 - sensillus (slide 209/20), 9 - ventral region (slide 209/20)



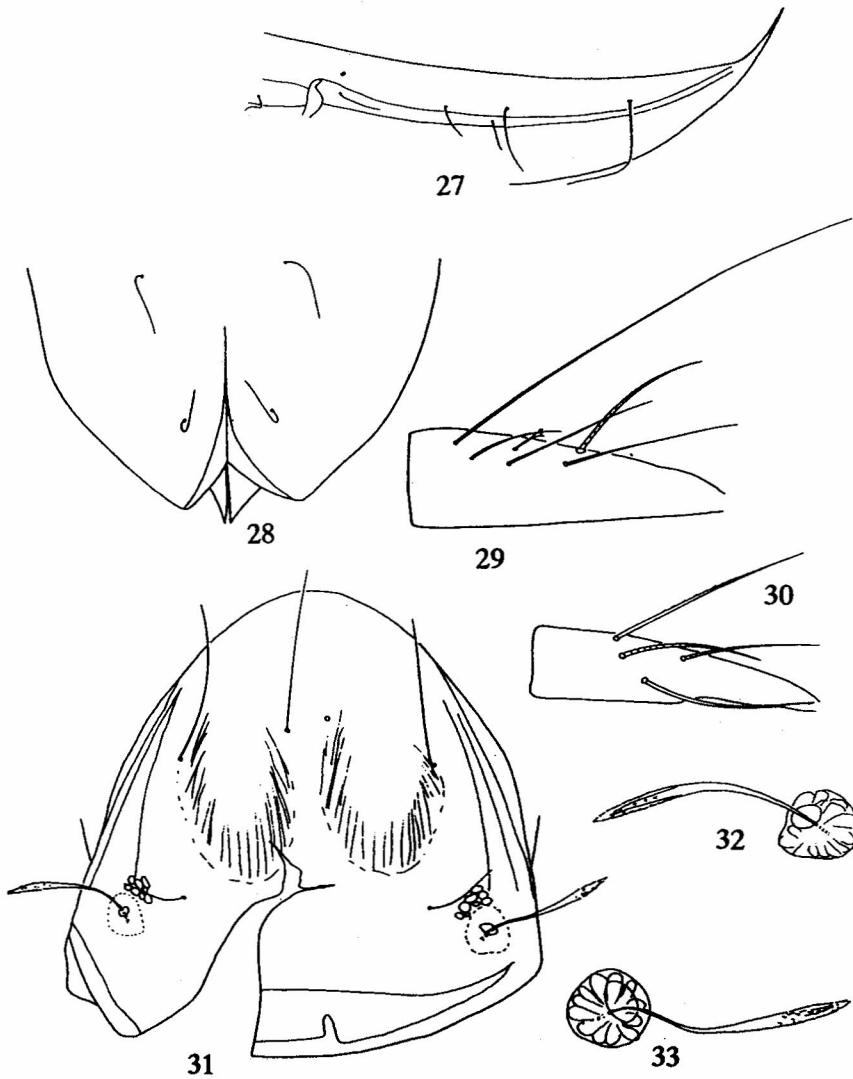
10-13. *Apoplophora pantotrema* (BERLESE, 1913): 10 - prodorsum, latero-dorsal view (slide 137/21), 11 - prodorsum, latero-dorsal view (slide 137/26), 12 - genital plate (slide 137/24), 13 - ano-adanal region (slide 137/24). 14-15. *Indotritia breviseta* (BERLESE, 1923) (slide 216/27): 14 - prodorsum, lateral view, 15 - genito-aggenital and ano-adanal plates



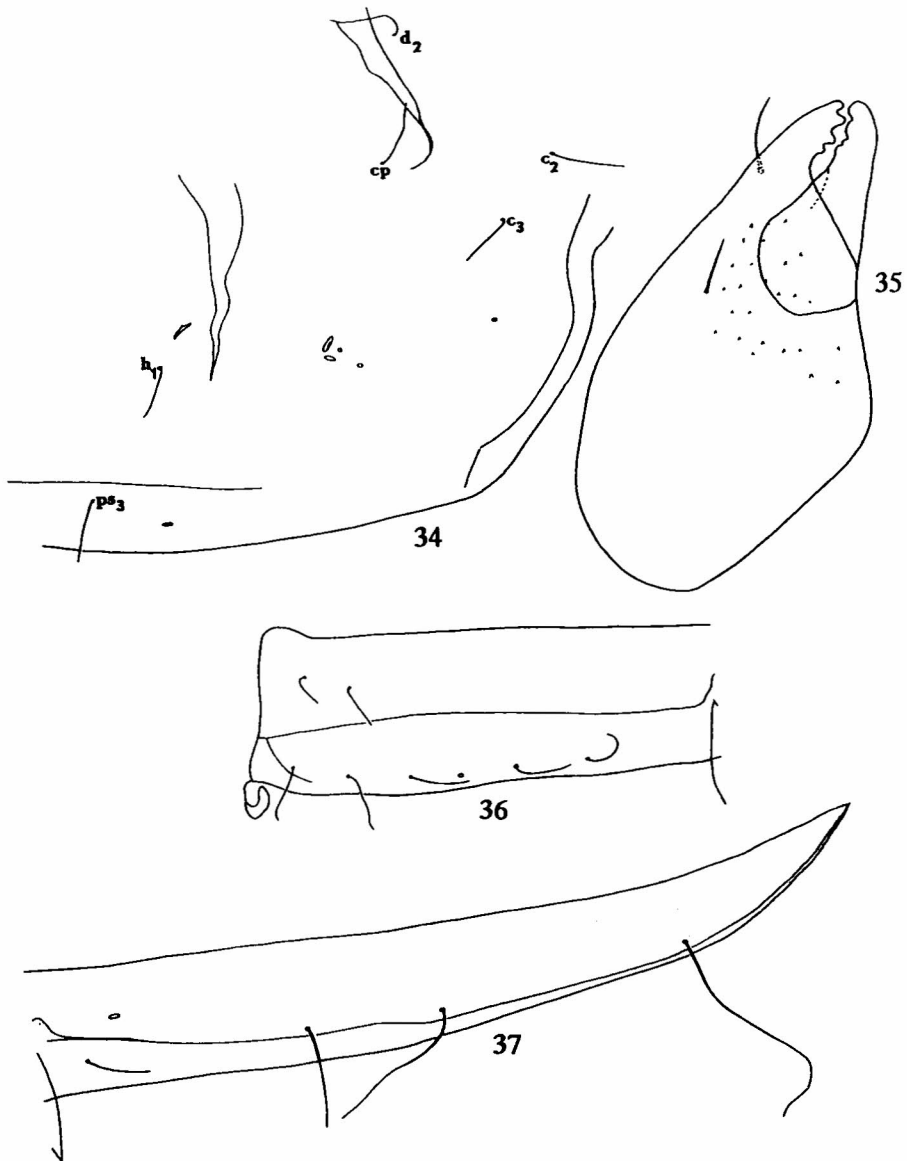
16. *Indotritia breviseta* (BERLESE, 1923): notogaster, lateral view. 17-20. *Mesotritia nuda* (BERLESE, 1887): 17 - prodorsum, lateral view (slide 215/34), 18 - sensillus (slide 215/34), 19 - sensillus (slide 215/35), 20 - genital-agenital and ano-adanal plates (slide 215/37). 21. *Mesotritia nuda* (BERLESE, 1887): notogaster, lateral view (slide 35/34)



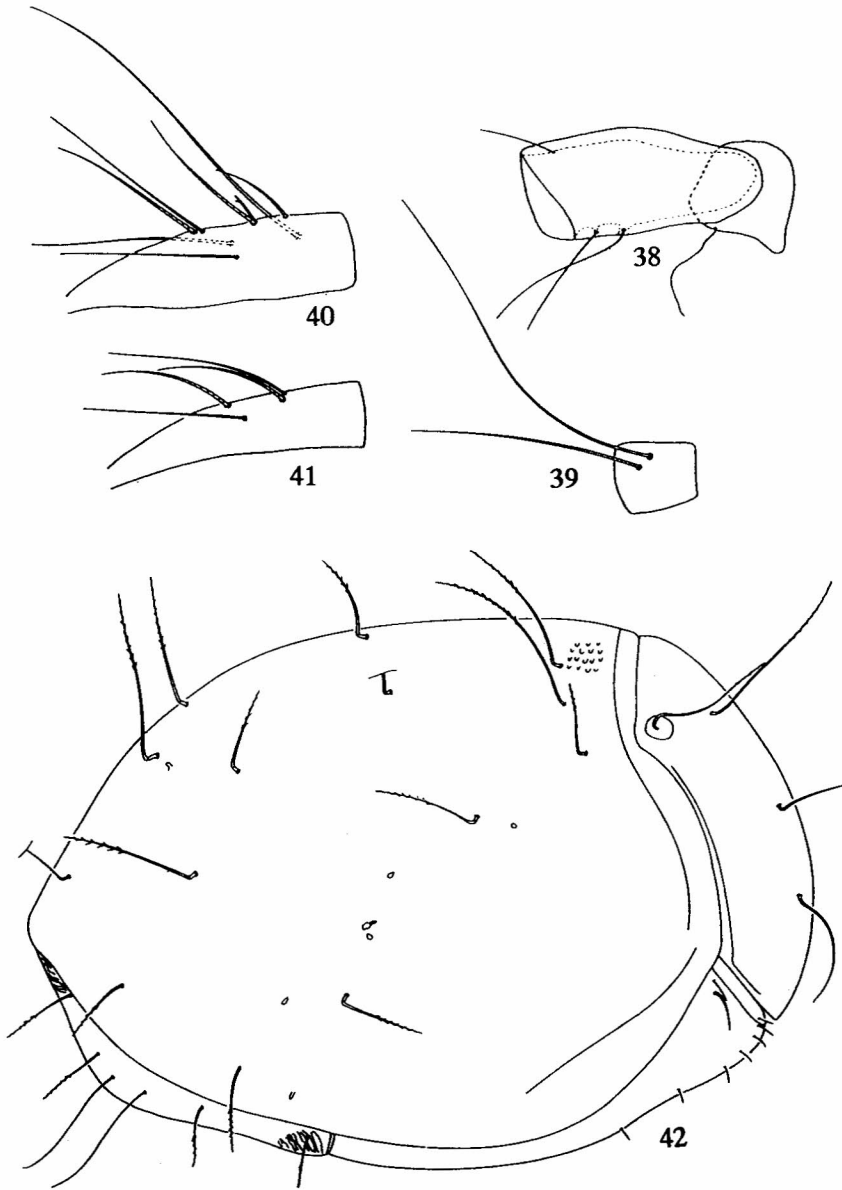
22-25. *Mesotritia piffli* MÄRKEL, 1964 - synonym of *Mesotritia nuda* (BERLESE, 1887): 22 - prodorsum, dorsal view, 23 - prodorsum, lateral view, 24 - sensillus, 25 - palp. 26. *Mesotritia piffli* MÄRKEL, 1964 - synonym of *Mesotritia nuda* (BERLESE, 1887): notogaster, lateral view



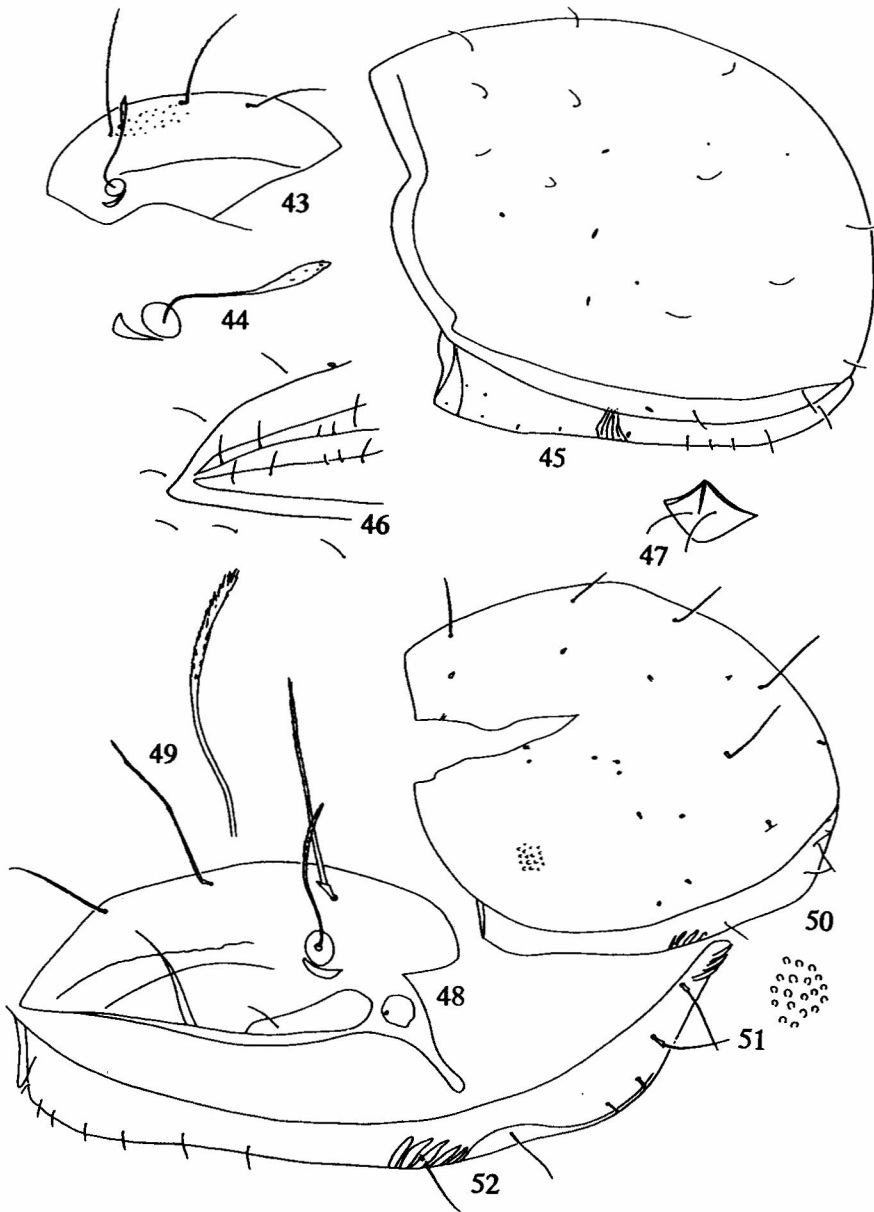
27-30. *Mesotritia pifli* MÄRKEL, 1964 - synonym of *Mesotritia nuda* (BERLESE, 1887): 27 - ano-adanal region, lateral view, 28 - posterior aspect of notogaster, 29 - fragment of tarsus I, 30 - fragment of tarsus II. 31-33. *Mesotritia elastica* SERGENKO, 1988 - synonym of *Mesotritia nuda* (BERLESE, 1887): 31 - prodorsum, dorsal view, 32 - sensillus left, 33 - sensillus right



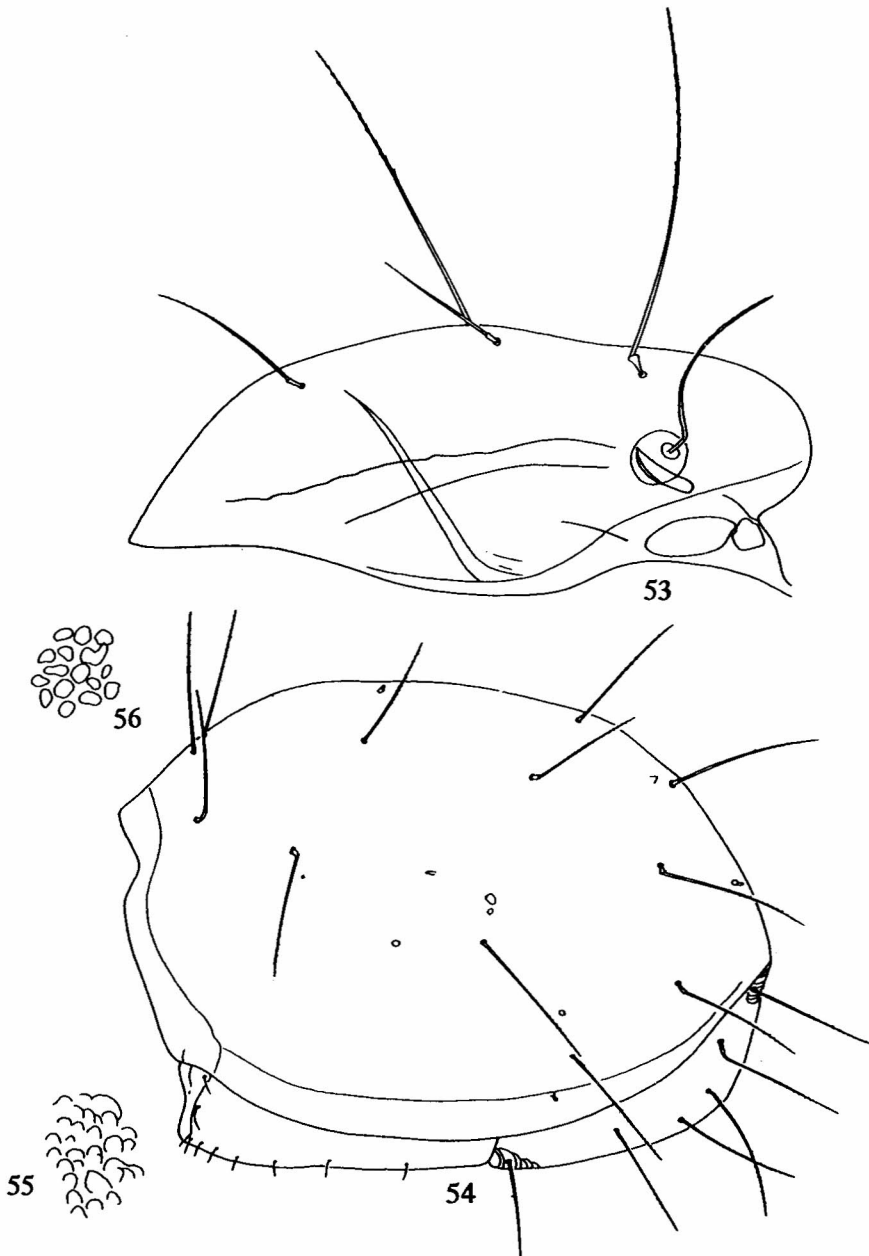
34-35. *Mesotritia elastica* SERGENKO, 1988 - synonym of *Mesotritia nuda* (BERLESE, 1887): 34 - fragment of notogaster, 35 - chelicera. 36-37. *Mesotritia elastica* SERGENKO, 1988 - synonym of *Mesotritia nuda* (BERLESE, 1887): 36 - genito-aggenital plate, 37 - ano-adanal plate



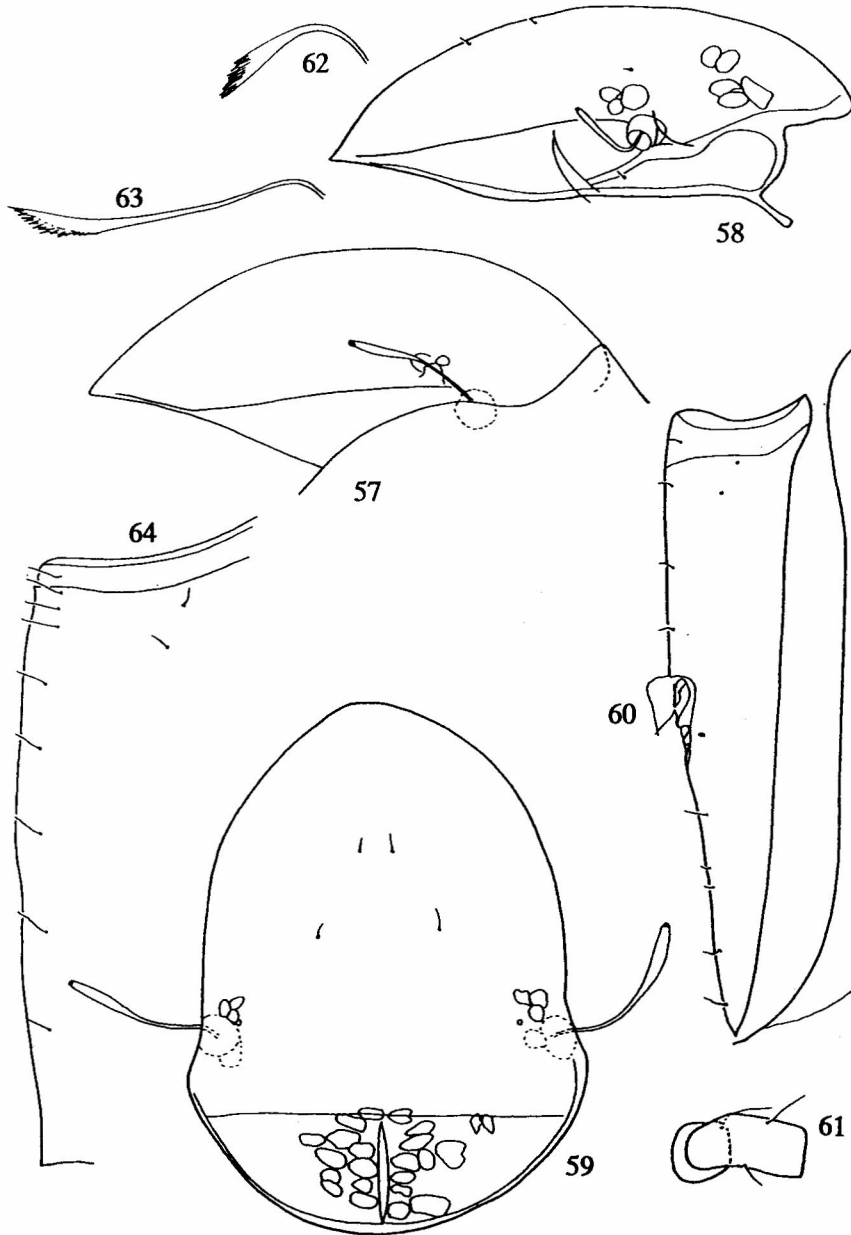
38-41. *Mesotritia elastica* SERGENKO, 1988 - synonym of *Mesotritia nuda* (BERLESE, 1887): 38 - trochanter and femur of leg I, 39 tibia of leg IV, 40 - fragment of tarsus I, 41 - fragment of tarsus II. 42. *Euphthiracarus cribarius* (BERLESE, 1904) (slide 16/24): lateral view of body



43-47. *Euphthiracarus (Euphthiracarus) monodactylus* (WILLMANN, 1919) sub *Tritia aequipunctata* BERLESE, 1923 (slide 225/36): 43 - prodorsum, lateral view, 44 - sensillus; *Microtritia xilophila* SUBIAS, 1977 - synonym of *Microtritia minima* (BERLESE, 1904): 45 - notogaster, lateral view, 46 - posterior part of ventral region, 47 - mentum of infracapitulum. 48-52. *Euphthiracarus (Euphthiracarus) punctulatus* (BERLESE, 1913) (slide 140/20): 48 - prodorsum, lateral view, 49 - sensillus, 50 - notogaster, lateral view, 51 - sculpture of notogaster, 52 - genito-aggenital and ano-adanal region



53-56. *Euphthiracarus* (*Euphthiracarus*) *reticulatus* (BERLESE, 1913): 53 - prodorsum, lateral view (slide 140/16), 54 - notogaster, lateral view (slide 216/28), 55 - sculpture of notogaster (slide 216/28), 56 - sculpture of prodorsum (slide 31/22)



57-64. *Microtrititia minima* (BERLESE, 1904) (slide 216/40): 57 - prodorsum, lateral view; *Microtrititia xilophila* SUBIAS, 1977 synonym of *Microtrititia minima* (BERLESE, 1904): 58 - prodorsum, lateral view, 59 - prodorsum, dorsal view, 60 - genito-aggenital and ano-adanal plates, 61 - trochanter and femur of leg I; *Rhyssotritia ardua* (C.L.Koch, 1841) sub *Tritia lentula* (K.) var. *hyeroglyphica* BERLESE, 1916 (slide 184/44): 62 - sensillus; *Rhyssotritia vestita* (BERLESE, 1913): 63 - sensillus (slide 141/18), 64 - fragment of genito-aggenital plate (slide 141/19)