

Zeitschrift: Archives des sciences et compte rendu des séances de la Société
Herausgeber: Société de Physique et d'Histoire Naturelle de Genève
Band: 35 (1982)
Heft: 2

Artikel: Neue und interessante Milben aus dem Genfer Museum XLIV :
Oribatida Americana 5 : Costa Rica (Acari)
Autor: Mahunka, S.
DOI: <https://doi.org/10.5169/seals-740561>

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NEUE UND INTERESSANTE MILBEN
AUS DEM GENFER MUSEUM XLIV *.
ORIBATIDA AMERICANA 5: COSTA RICA (ACARI)

BY

S. MAHUNKA ¹

ABSTRACT

New and interesting mites from the Geneva Museums XLIV. Oribatida Americana 5: Costa Rica (Acari). — A survey of Oribatid mites, collected by P. Werner in Costa Rica is presented. 10 species are listed. One new genus and 7 new species are described: *Phthirarica* gen. n.; *Mesoplophora hauseri* sp. n., *M. longiseta* sp. n., *Phthirarica ridicula* sp. n., *Euphtiracarus comteae* sp. n., *Euryacarus pilosus* sp. n., *Basilobelba weneri* sp. n. and *Ceratorchestes cornutus* sp. n.

The soil Zoological studies of the last two decades have substantially modified and or enhanced our knowledge of the Neogaeon terrestrial mite fauna. Collecting made by Hammer, Schaller, Topál, Schuster, Di Castri and his co-workers, and especially the Hungarian soil zoological expeditions lead by Dr. J. Balogh, have supplied such a mass of interesting material that an overall zoogeographical evaluation may also be envisaged.

If we consider the geographical distribution of the available material there appear certain regions which still need exploration. Among the greatest gaps in information concerning distribution are Central America and the West Indies.

The efforts made by the Geneva Natural History Museum (Dr. B. Hauser) to investigate the circumtropical soil fauna coincide with the aims of the Hungarian soil zoological expeditions. In 1978 I was working in the above Museum on material

* XX: Beitrag zur Kenntnis der Oribatiden-Fauna Griechenlands (Acari). (*Revue suisse Zool.*, 81: 569—590, 1974).

¹ Dr. Sandor Mahunka, Zoologische Abteilung des Ungarischen Naturwissenschaftlichen Museums, Baross utca 13, H-1088 Budapest.

from Central America and in particular on a small sample from Costa Rica. Among the ten species of Oribatid mites identified seven proved to be new to science.

It is interesting to note that one of the known species, *Cavernocephus monstruosus* Bal. et Mah., 1969, is recorded for the first time outside Brazil and that *Ceratorchestes cornutus* sp. n. considerably modifies knowledge on the distribution of this genus.

Up to the present time members of the genus-group Phthiracarida (characterized by having anoadanal neutrichy) were known only from the Southern Neogaea and the South Pacific. With the discovery of the new genus, the presence of this genus-group is now confirmed for the Northern Neogaea.

LIST OF LOCALITIES

CR — 0778 Tu 01: Costa Rica, Turrialba, forêt naturelle du CATIE, alt. 560 m; 15.7.1978. — litière d'un m² de sol plat.

CR — 0778 Tu 02: idem — sous litière de 1 m² de sol plat.

CR — 0778 Tu 03: Costa Rica, Turrialba, forêt naturelle du CATIE, alt. 560 m; 24.7.1978. — litière d'un m² de sol plat.

CR — 0778 Tu 04: idem — sous litière de 1 m² de sol plat.

CR — 0878 Tu 05: Costa Rica, Turrialba, forêt naturelle du CATIE, alt. 560 m; 5.8.1978. — litière d'un m² de sol plat.

CR — 0878 Tu 06: idem — sous litière de 1 m² de sol plat.

All material was collected by Philippe WERNER and extracted by WINKLER-MOCZARSKI apparatus.

LIST OF THE IDENTIFIED SPECIES

Mesoplophoridae Ewing, 1017

Mesoplophora hauseri sp. n.

Mesoplophora longiseta sp. n.

Phthiracaridae Perty, 1841

Phthirarica ridicula gen. n., sp. n.

Euphthiracaridae Jacot, 1930*Euphthiracarus comteae* sp. n.**Lohmanniidae** Berlese, 1916*Euryacarus pilosus* sp. n.**Epilohmanniidae** Oudemans, 1923*Epilohmannia pallida pacifica* Aoki, 1965

Locality: CR — 0878 Tu 05 (1 Ex.)

Hermanniellidae Grandjean, 1934*Sacculobates horologiorum* Grandj., 1962

Locality: CR — 0778 Tu 04 (2 Ex.)

Basilobelbidae Balogh, 1961*Basilobelba weneri* sp. n.**Metrioppiidae** Balogh, 1943*Ceratorchestes cornutus* sp. n.**Otocephidae** Balogh, 1961*Cavernocephus monstruosus* Bal. et Mah., 1969

Locality: CR — 0778 Tu 04 (2 Ex.)

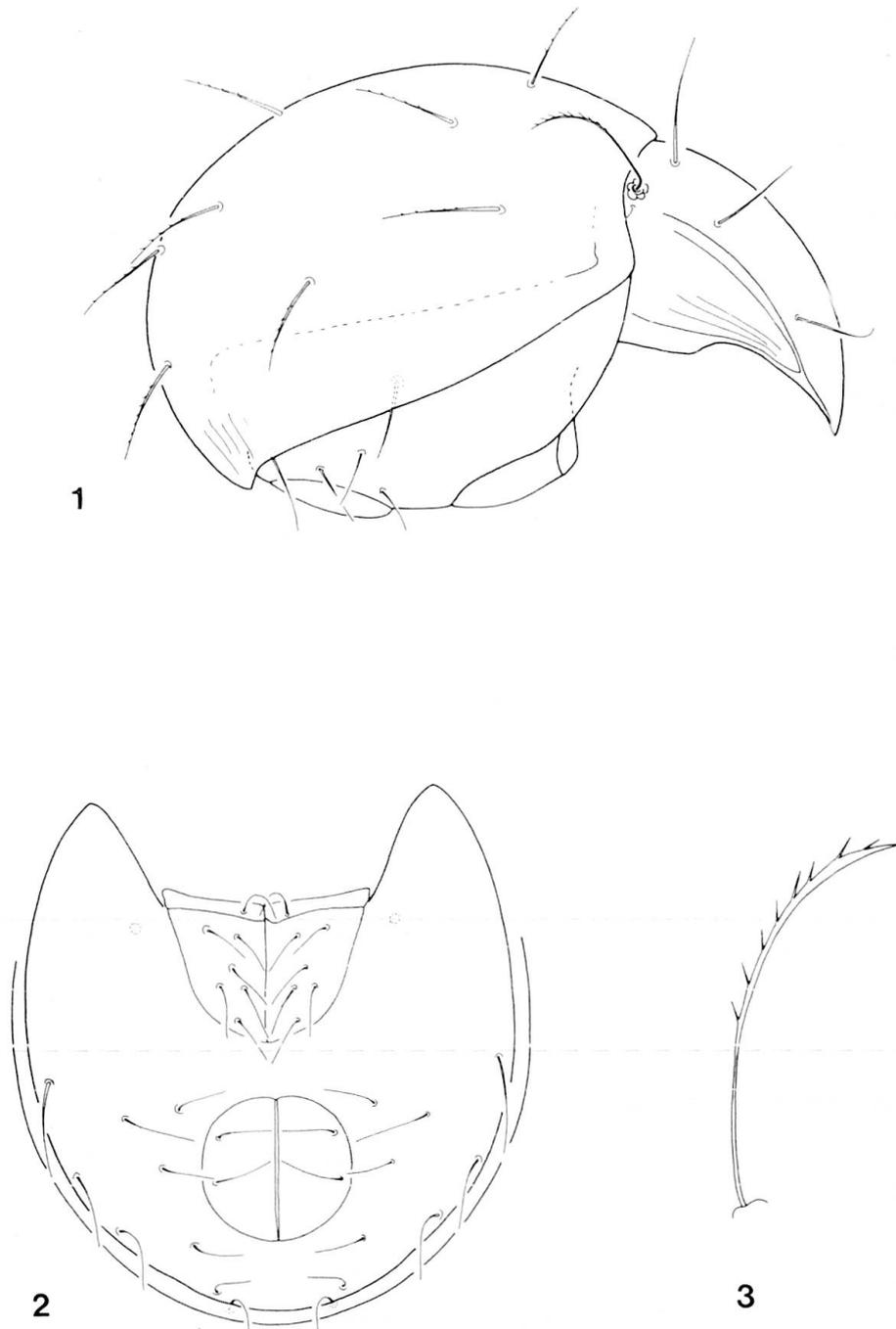
DESCRIPTION OF THE NEW TAXA

Mesoplophora hauseri sp. n.

Measurements: Length of aspis: 237-250 μ ; length of notogaster: 324-336 μ ; height of notogaster: 165-179 μ .

Aspis (Fig. 1): Rostrum rounded, in lateral view somewhat elongated. Lateral surface deeply excised. Side of aspis with a double line (carina) towards bothridium; lateral border also with a pronounced line merging into inner line of double carina before rostrum. Between these two strong lines also some narrower and shorter lines present. Hairs of prodorsum hardly ciliated. Sensillus (Fig. 3) very long, its distal end weakly but recognizably fusiform, bearing 7-8 cilia. Notogaster very wide in superior view, its hairs thick, short, ciliate.

Anogenital region (Fig. 2): Genital plate with 6+1 hairs, aggenital hair absent. Anal plate with 2, "ventral" one with 9 pairs of hairs. A considerable difference in size among hairs, especially the sixth hair is thick and long.



FIGS. 1-3. — *Mesoplophora hauseri* sp. n.
1: lateral side; 2: anogenital region; 3: sensillus.

Material examined: Holotype: CR — 0778 Tu 04; 8 Paratypes: from the same sample; 2 Paratypes: CR — 0778 Tu 01; 6 Paratypes: CR — 0778 Tu 02; 6 Paratypes: CR — 0778 Tu 03; 8 Paratypes: CR — 0878 Tu 05; 3 Paratypes: CR — 0878 Tu 06. Holotype and 19 Paratypes in the MHNG *; 14 Paratypes (462-POa-f-79) in HNHM *.

Remarks: Only two *Mesoplophora* Berlese, 1904 species were so far known from the Neogaeon region (SCHUSTER, 1962). In both species the sensillus is ciliate and setiform and the distal end is not fusiform. The new species differs from the others by the hairs on the ventral plate, the sixth being essentially the strongest.

***Mesoplophora longiseta* sp. n.**

Measurements: Length of aspis: 176-184 μ ; length of notogaster: 250-261 μ ; height of notogaster: 123-132 μ .

Aspis (Fig. 4): Rostrum rounded. Lateral surface of aspis concave in side view framed by a line parallel with its margin. A narrow line decurrent towards the bothridium and fusing with line along lateral border. Hairs of aspis long, thin and curved. Sensillus (Fig. 6) setiform, without any thickening, its middle third with 4-5 lateral cilia.

Notogaster: Eight pairs of very long ciliate hairs, seta c_3 almost reaching insertion point of hair d_2 .

Anogenital region (Fig. 5): 7 pairs (1 + 6) of genital and 1 pair of aggenital hairs. Anal hairs arising from anterior half of plate. Ventral plate with 8 pairs of hairs, in anal region sixth hair longest of all.

Material examined: Holotype: CR — 0778 Tu 02; 2 Paratypes: from the same sample. Holotype and 1 Paratype in the MHNG; 1 Paratype (463-PO-79) in the HNHM.

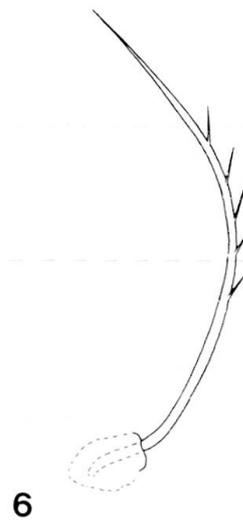
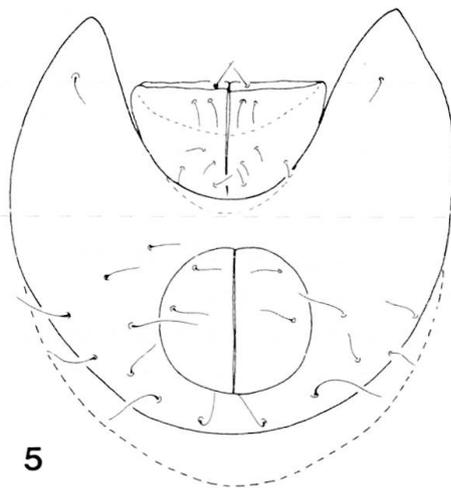
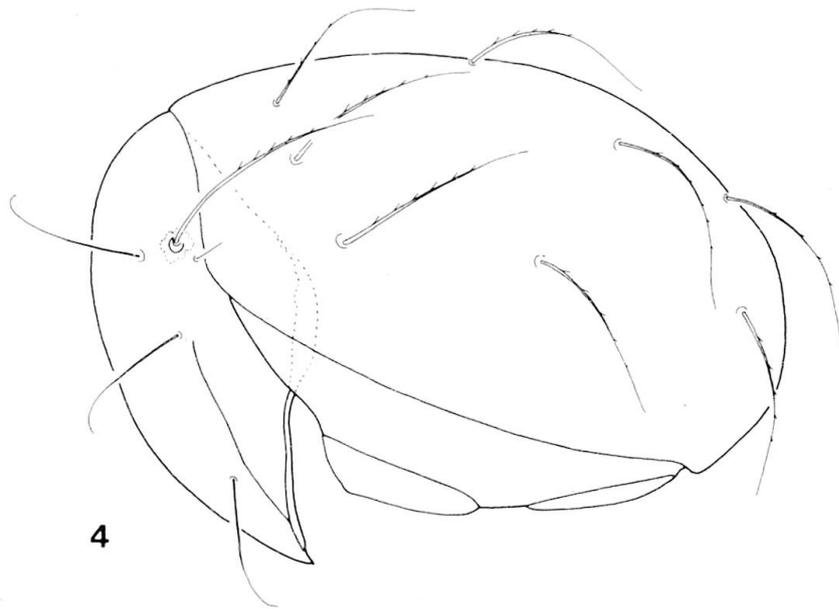
Remarks: The new species differs from its congeners by their sensillus. In particular it differs from the two Brazilian species displaying 8-9 cilia distributed over the entire length of the sensillus and not confined to the middle third. Finally the presence of the aggenital hairs and the position of the anal ones are also differing features.

***Phthirarica* gen. n.**

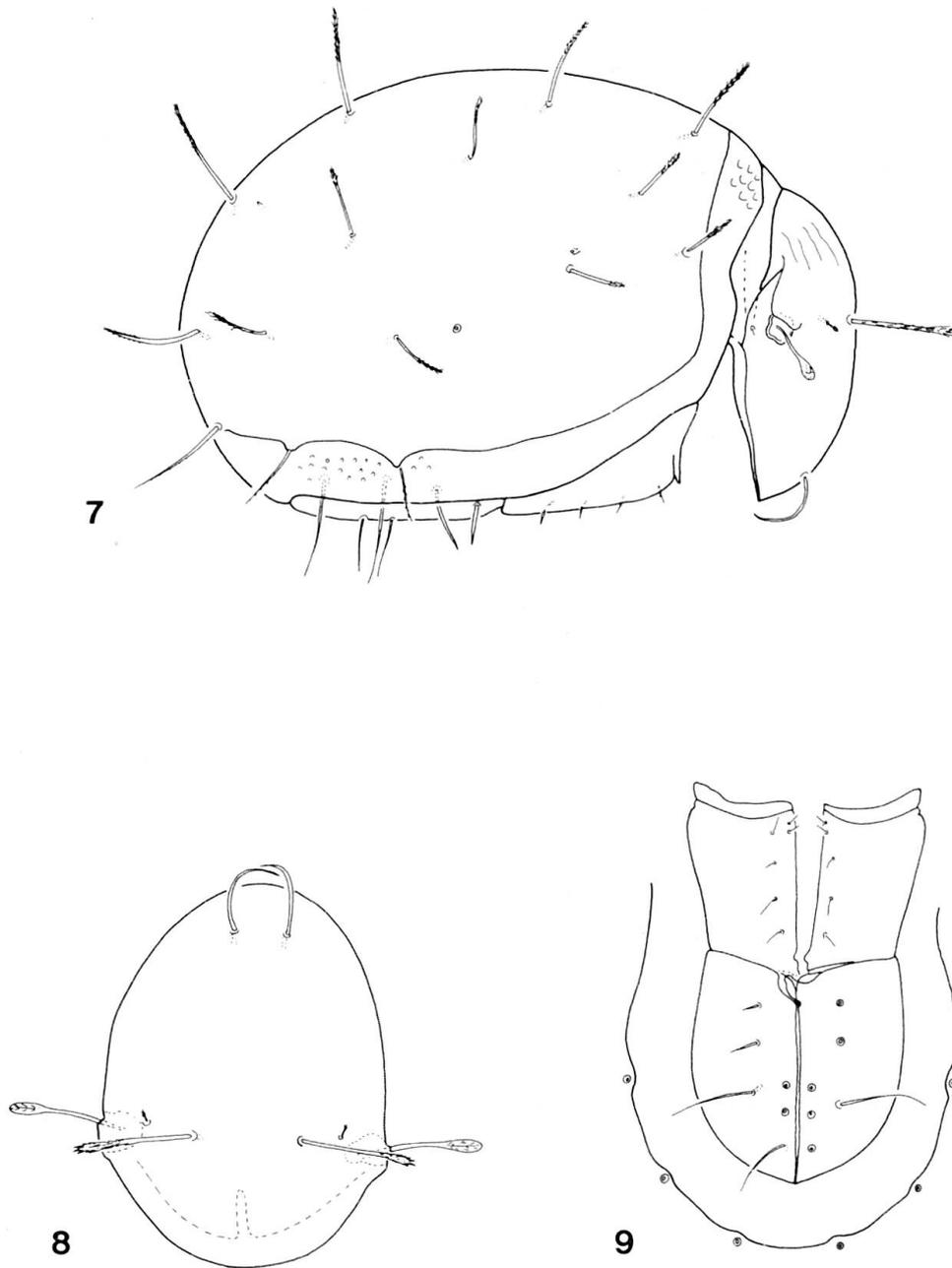
Diagnosis: Body with foveolate sculpture. Interlamellar hair of aspis erectile, proclinate. 15 pairs of notogastral setae. Six pairs of hairs on anoanal plate:

* MHNG = Museum d'Histoire naturelle, Genève.

HNHM = Hungarian Natural History Museum, Budapest.



FIGS. 4-6. — *Mesoplophora longiseta* sp. n.
4: lateral side; 5: anogenital region; 6: sensillus.



FIGS. 7-9. — *Phthirarica ridicula* gen. n., sp. n.
7: lateral side; 8: aspis; 9: anogenital region.

2 anal setae near each other along inner margin, followed by one adanal and backed by 3 adanal ones.

Type-species: *Phthirarica ridicula* sp. n.

Remarks: The new genus belongs among those having a neotrichy on their anoanal plates (MAHUNKA, 1980). It is impossible to relegate the new species in any known genus, because it shows also an erectile aspis hair besides the normal number of notogastral hairs.

***Phthirarica ridicula* sp. n.**

Measurements: Length of aspis: 230-262 μ ; length of notogaster: 442-472 μ ; height of notogaster: 340-352 μ .

Aspis (Fig. 8): Rostrum widely rounded. A narrow ridge bordering aspis in lateral view (Fig. 7). Rostral hairs pro- and inclinate, strongly curved, crossing each other, smooth, obtusely aciculiform. Interbothridial region with inner pair of hairs stiffly erect and straight, elongately ciliated distally. Outer pair of hairs minute, ciliate. Exobothridial hair hardly recognizable. Sensillus long, distally phylliform.

Notogaster: Surface with very weak foveolate sculpture. Larger foveolae on anterior margin and smaller ones along lower margin. 15 pairs of obtuse and ciliate notogastral hairs without any essential difference in size; hairs c_3 and inner ones (d_2 , e_2 , h_3) shorter; marginal ones (c_1 , d_1 , e_1 , h_1 , ps_1) longer.

Anogenital region (Fig. 9): Anoanal plate with 6 pairs of hairs; inner margin with 2 pairs near each other and a third one further posteriorly.

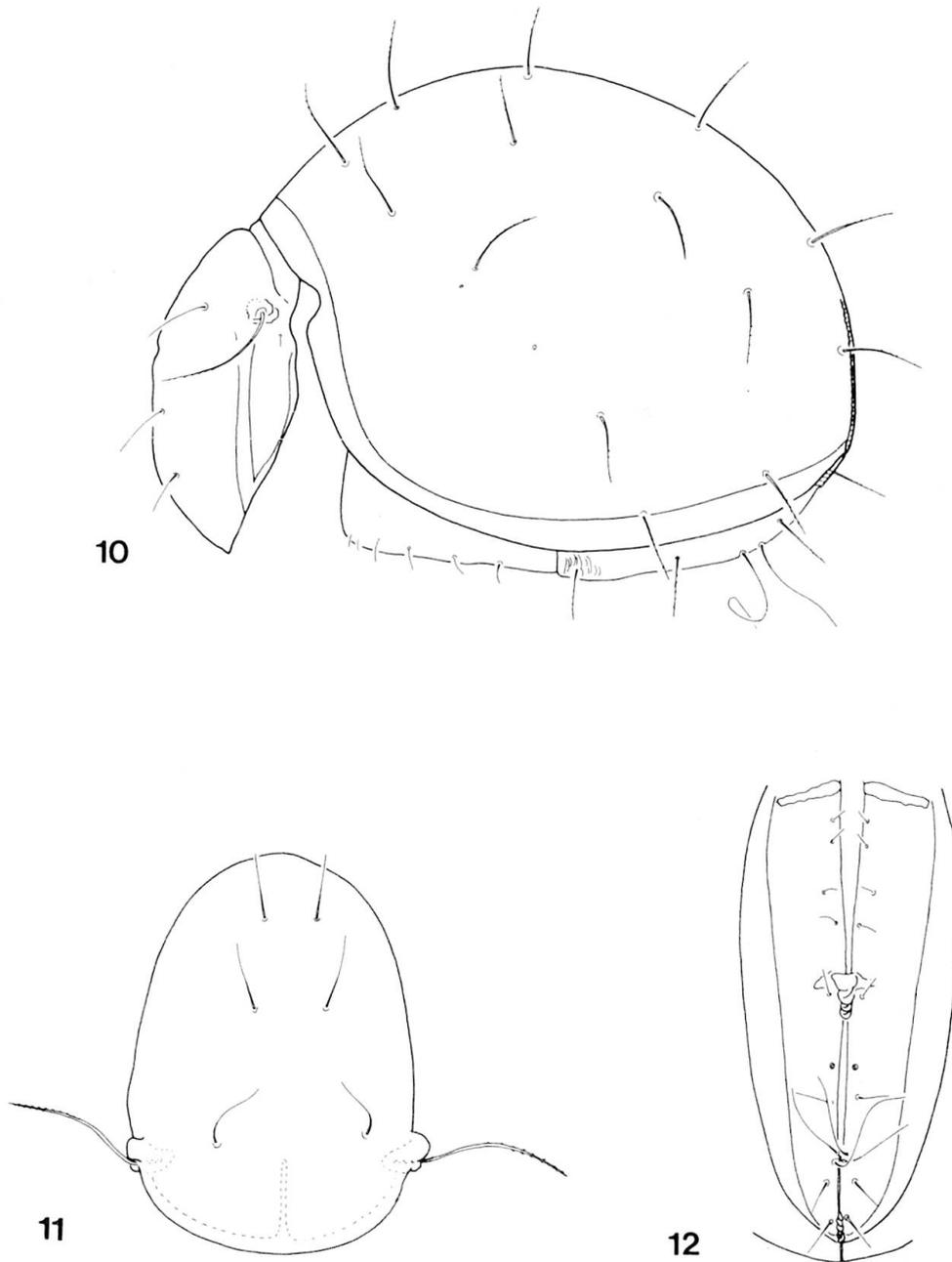
Material examined: Holotype: CR — 0778 Tu 04; 3 Paratypes: from the same sample; 4 Paratypes: CR — 0778 Tu 02. Holotype and 5 Paratypes in the MHNG, 2 Paratypes (464-POa-b-79) in the HNHM.

***Euphthiracarus comteae* sp. n.**

Measurements: Length of aspis: 368-389 μ ; length of notogaster: 710-756 μ ; height of notogaster: 542-567 μ .

Aspis (Fig. 11): Widely rounded anteriorly. In lateral view (Fig. 10) upper margin sinuous, lower one framed by a thin line. Two carinae decurrent from bothridium towards lateral margin, upper carina stronger. All three pairs of hairs of aspis conspicuously short, interlamellar hairs curved, rostral and lamellar ones more rigid. A minute exobothridial hair present. Sensillus setiform, very finely ciliate.

Notogaster: Surface with 14 pairs of hairs, all rigid and slightly ciliate; hairs c_1 arising far from anterior margin of notogaster, at nearly double distance than hair c_2 .



FIGS. 10-12. — *Euphthiracarus comteae* sp. n.
10: lateral side; 11: aspis; 12: anogenital region.

Anogenital region (Fig. 12): Anoadanal plate with hair a_1 thick, rigid, as long as adanal ones. Hairs an_2 and an_3 terminally flagellate, essentially longer than former ones. Fissura terminalis long, but not reaching insertion points of hairs h_1 .

Material examined: Holotype: CR — 0778 Tu 01; 1 Paratype: from the same sample; 3 Paratypes: CR — 0778 Tu 04; 2 Paratypes: CR — 0778 Tu 02. Holotype and 4 Paratypes in the MHNG, 2 Paratypes (465-POa-b-79) in the HNHM.

Remarks: MÄRKEL (1964) summarized the species of *Euphthiracarus* Ewing, 1917. The new species belongs without doubt in the nominate subgenus. It differs from all congeners by having extremely short (shorter than sensillus) and differently shaped aspis hairs, and by hair c_1 originating far removed from the anterior notogastral margin and hair c_2 , respectively.

The new species is dedicated to Madame L. Comte, Dr. Hauser's assistant.

***Euryacarus pilosus* sp. n.**

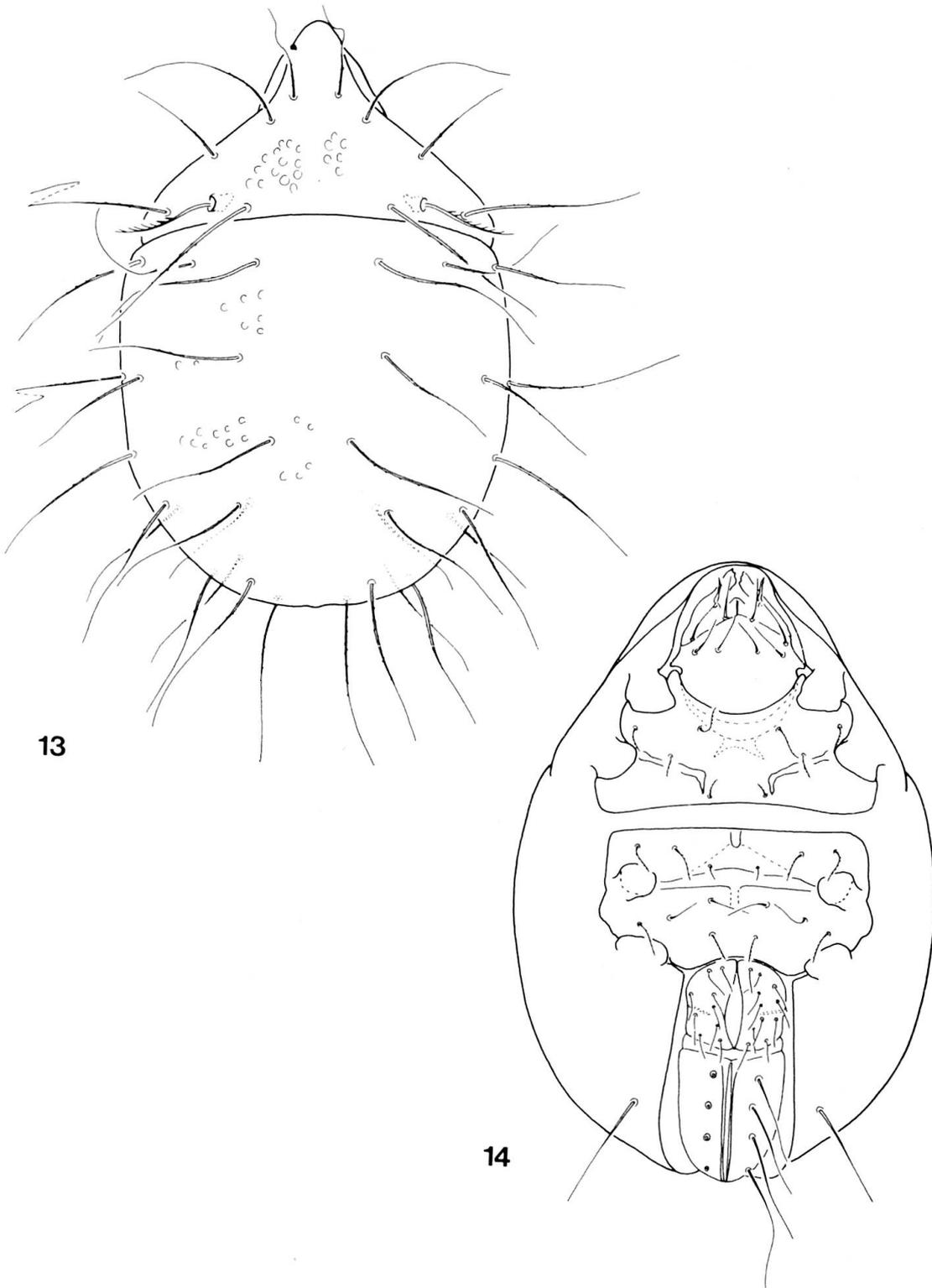
Measurements: Length: 914-978 μ ; width: 603-667 μ .

Dorsal side (Fig. 13): Rostrum broadly rounded, but with narrower rostral part sharply distinct from wide propodosoma. Rostral and anterior exobothridial hairs shortest among prodorsal setae, interlamellar pair longest yet also lamellar and posterior exobothridial hairs hardly shorter. All notogastral hairs extremely long, terminally filiform and finely, unilaterally ciliate. Distance between hairs e_1 shorter than that between hairs d_1 and h_1 .

Ventral side (Fig. 14). Two pairs of hairs arising on mentum. Epimeral setal formula: 3-1-3-4. Apodemes weakly developed, merely short sections of sternal apodemes recognizable on anterior sternal plate; only apodemes 4 forming a transverse band. Genital plate undivided, some specimens, however, showing a very weak, incomplete dividing line. Anal and adanal plates wholly fused, bearing 4 pairs of hairs in a single line.

Material examined: Holotype: CR — 0778 Tu 01; 7 Paratypes: from the same sample; 4 Paratypes: CR — 0778 Tu 02; 1 Paratype: CR — 0778 Tu 03; 1 Paratype: CR — 0778 Tu 04. Holotype and 8 Paratypes in the MHNG, 5 Paratypes (466-POa-c-79) in the HNHM.

Remarks: Only the type-species of *Euryacarus* Woolley, 1966 was known from Guatemala. According to WOOLLEY's description and the published figure, hairs *exp.* of *E. petalus* are much shorter than hairs *exa*, whereas the specimens from Costa Rica show a reverse case. WOOLLEY's drawing also reveals that even the ratio in length of the notogastral hairs is different; in the new species they are much longer. Hairs c_1 and d_1 arise nearer to each other than hairs e_1 . Accordingly, the new species could not be identified with WOOLLEY's description.

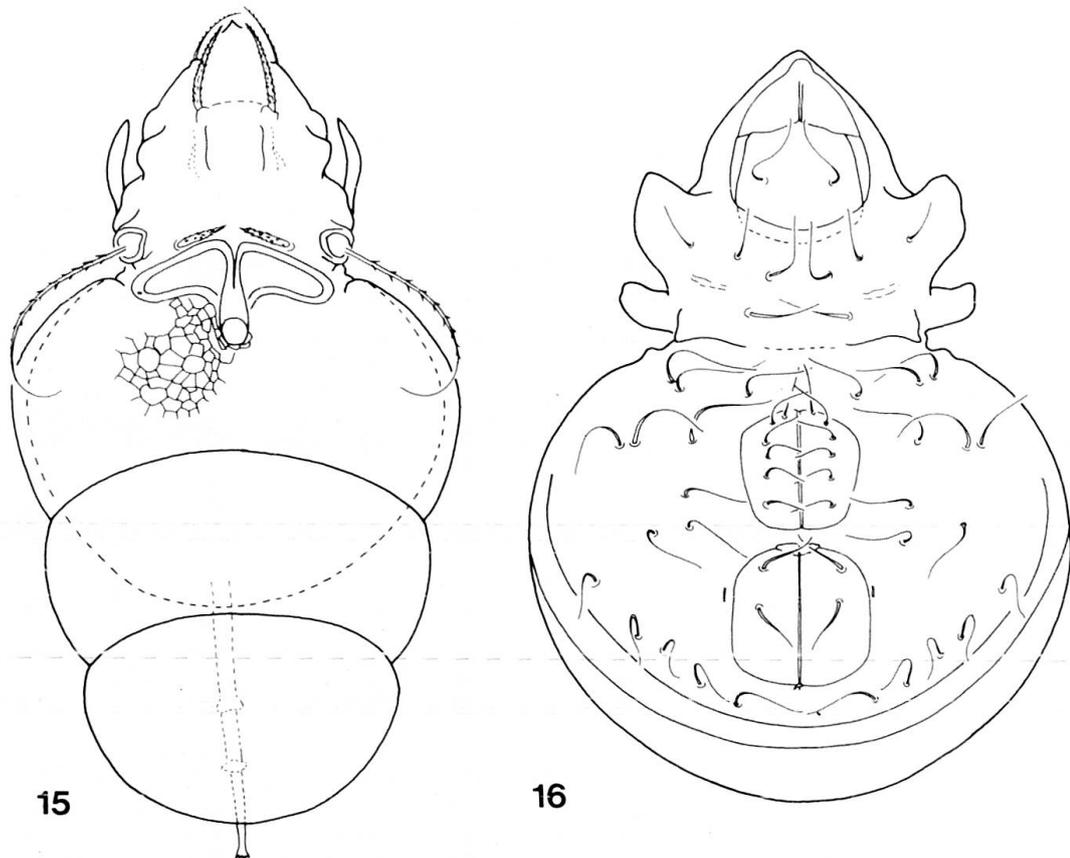


FIGS. 13-14. — *Euryacarus pilosus* sp. n.
13: dorsal side; 14: ventral side.

***Basilobelba weneri* sp. n.**

Measurements: Length: 576-594 u; width: 408-424 u.

Dorsal side (Fig. 15): Three nymphal skins present, therefore stylus articulating at end of body and bearing exuviae, very long, zigzag in lateral view. Nymphal skins with a polygonal sculpture, occasionally interrupted by some larger circular areas. Bilaterally to opening of stylus a smooth oblong surface, also a smooth area adjoined by insertion points of 4-5 pairs of hairs. Prodorsum with rostral hairs thin,



FIGS. 15-16. — *Basilobella weneri* sp. n.

15: dorsal side; 16: ventral side.

lamellar and interlamellar ones very thick and densely ciliated. Sensillus very long, arcuate and ciliate on both sides. Anterior chitinous appendage bearing larval skin flat, showing only insertion points of hairs c_2 .

Ventral side (Fig. 16): Similar to basic type of genus. Epimeral hairs long, curved, usually directed to middle of body. Epimeral setal formula: 3-1-3-3. Genital, aggenital and adanal hairs long, thin, anal setae thickened. Five pairs of thin hairs behind anal opening, near margin of body.

Legs: Femur of all legs with extremely large, phylliform and also some densely ciliated hairs. Other leg segments with considerably thinner setae.

Material examined: Holotype: CR — 0778 Tu 04; 4 Paratypes: from the same sample; 1 Paratype: CR — 0778 Tu 01; 1 Paratype: CR — 0778 Tu 02. Holotype and 4 Paratypes in the MHNG, 2 Paratypes (467-PO-79) in the HNHM.

Remarks: The species of *Basilobelba* Balogh, 1958, have been summarized by AOKI (1968). The new species differs from all congeners by the three nymphal skins and the extremely long stylus; some good distinguishing features are also the shape of the lamellar and interlamellar hairs and the chaetotaxy of the anogenital region.

***Ceratorchestes cornutus* sp. n.**

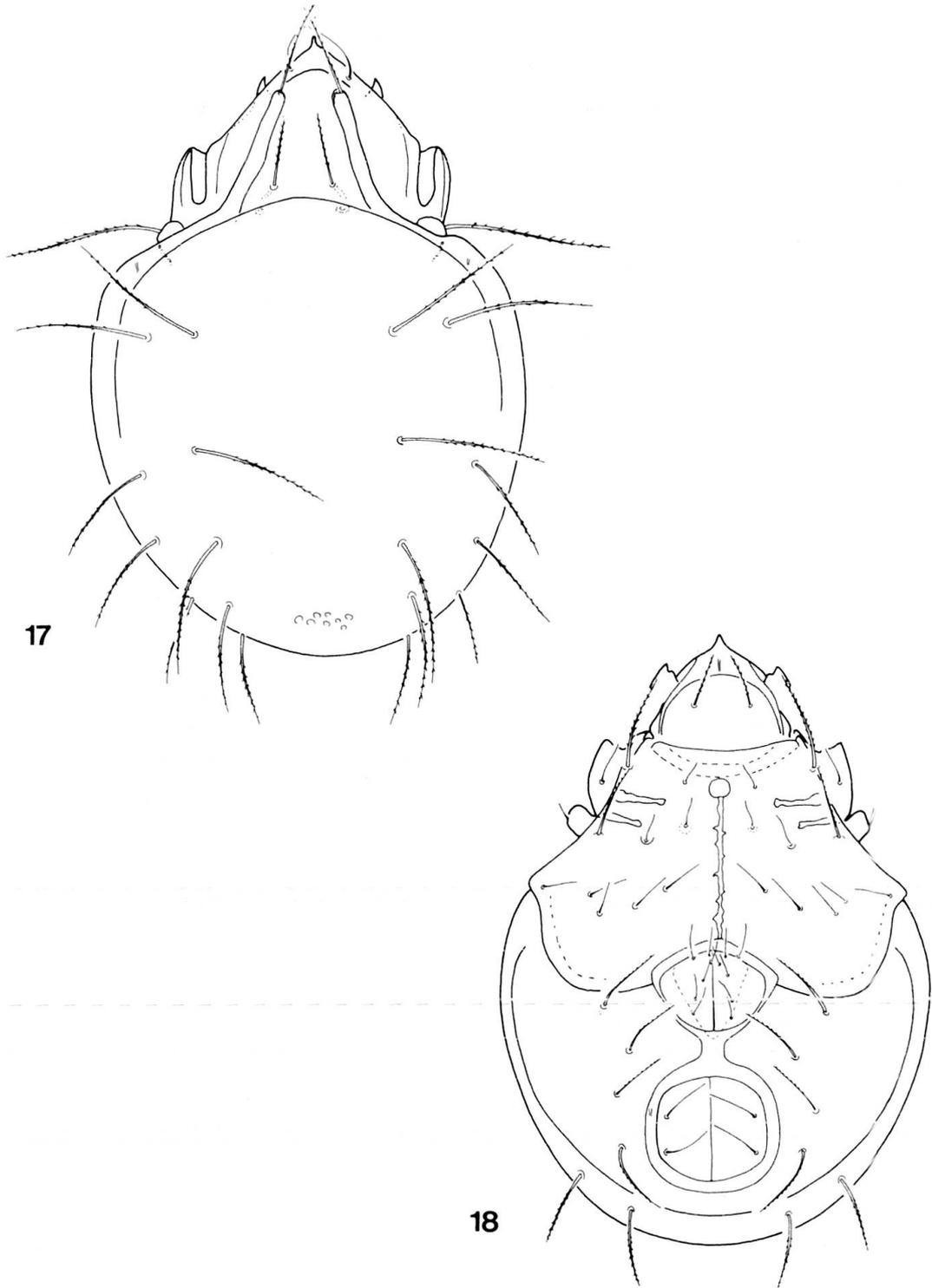
Measurements: Length: 358-372u; Width: 240-255 u.

Dorsal side (Fig. 17): Rostrum elongated into an acute apex. Prodorsal margin with a sharply pointed chitinous lath, thin and curved rostral hairs arising considerably anterior to pointed end, on prodorsal surface. Lamellae long, beginning at base of bothridium, decurrent to anterior fourth of prodorsum, their cuspides wide, bearing relatively short and ciliate lamellar hair together with interlamellar hair, these hairs both thicker than rostral one. Sensillus setiform, long, densely ciliated on both sides. Notogaster broadest on anterior margin. Nine pairs of long, rigid, ciliated notogastral hairs present, also insertion point of hair 10 (*ta*) well discernible.

Ventral side (Fig. 18): Similar to basic type of genus. Apodemes (excepting apodeme 4) short and very weakly developed. In front below mentum a spherical thickening visible, sternal apodeme characteristically staggered. Epimeres 1 and 2 small, epimeres 3 and 4 fused and very extensive. Epimeral setal formula: 3-1-3-5; hairs *1b* and *3b* strongly thickened, rigid and densely ciliate. All hairs generally pro- and inclinate. Configuration of anogenital region similar to that of type-species *C. setosus* Bal. et Mah., 1969.

Material examined: Holotype: CR — 0778 Tu 02; 1 Paratype: CR — 0778 Tu 04; 1 Paratype: CR — 0878 Tu 06. Holotype and 1 Paratype in the MHNG, 1 Paratype (468-PO-79) in the HNHM.

Remarks: Only two species of *Ceratorchestes* Balogh et Mahunka, 1969 were so far known, both from Neogaea. The type-species has a clearly visible translamella, while the rostrum of *C. globosus* Bal. et Mah., 1969 is obtuse, its lamellae far from each another. Accordingly the new species is easily separable from its congeners.



FIGS. 17-18. — *Ceratorchestes cornutus* sp. n.
17: dorsal side; 18: ventral side.

SUMMARY

10 species of Oribatid mites have been collected in forest litter from Turrialba (Costa Rica). 7 species (*Mesoplophora hauseri* sp. n., *M. longiseta* sp. n., *Phthirarica ridicula* sp. n., *Euphthiracarus comteae* sp. n., *Euryacarus pilosus* sp. n., *Basilobelba weneri* sp. n. and *Ceratorchestes cornutus* sp. n.) are described as new for science and one new genus (*Phthirarica* gen. n.) is erected.

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