

Some data to the Oribatid Fauna of Rwanda (Acari: Oribatida)
(New and interesting mites from the Geneva Museum LXII.)

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Some data to the Oribatid Fauna of Rwanda (Acari: Oribatida). – Fifteen Oribatid species are discussed, originating from the territory of Rwanda, all extracted from soil samples. The description of 6 species and that of a new genus: *Mirogalumna* gen. n. (*Galumnidae*) is given.

Key-words: Acari – Oribatida – Taxonomy – new species – Rwanda

INTRODUCTION

While staying in Rwanda Dr. Ph. Werner sifted and extracted samples by using the Moczarsky-Winkler bags on the request of Dr. C. Besuchet and Dr. B. Hauser. The material included a large number of Oribatid mites too, of which a part has been identified and is published hereunder. I should like to thank Dr. B. Hauser for allowing me to study this interesting material.

This material is of particular importance, since so far we had a very small number of samples only, and from some regions none at all. The short list of species suggests that the fauna prevailing here indicates relationship with the rainforest fauna of Congo and Angola.

Measurements given correspond to extremes observed in the present material; length is measured from the rostral apex to the furthestmost opposite point of the body. The pilosity of the parts of the body and of the legs are expressed in formulae. The sequence of the anogenital formula is: number of genital, aggenital, anal and adanal setae. Within the setal formula of the palp and legs, the solenidia of a given segment are marked with the symbol +. This study is in part supported by the Hungarian Research Project OTKA 3165.

List of localities:

Rw-76/1 = Rwanda: Rangiro, tamisage en forêt, sol ocre, 20.VIII.1976. leg. Ph. Werner.

Rw-76/2 = Rwanda: Rangiro, tamisage en forêt, 26.VIII.1976. leg. Ph. Werner.

Rw-76/3 = Rwanda: Rangiro, tamisage en forêt, près d'un ruisseau. 4.II.1976. leg. Ph. Werner.

Rw-76/4 = Rwanda: Rangiro, tamisage en forêt, sommet de colline, 14.IX.1976. leg. Ph. Werner.

Rw-76/5 = Rwanda: Rangiro, tamisage en forêt, zone défrichée, 20.IX.1976. leg. Ph. Werner.

IDENTIFIED SPECIES:

PHTHIRACARIDAE Perty, 1841

Archiphthiracarus minutissimus Balogh et Mahunka, 1980

Locality: Rw-76/1: 1 specimen.

Rhacaplacarus laterospinosus sp. n.

Localities: Rw-76/1; Rw-76/4.

Hoplophorella pustulata sp. n.

Locality: Rw-76/2.

Steganacarus complicatus sp. n.

Locality: Rw-76/1.

Steganacarus weneri sp. n.

Localities: Rw-76/1; Rw-76/2; Rw-76/3; Rw-76/4.

EPILOHMANNIIDAE Oudemans, 1923

Epilohmannia ornata sp. n.

Localities: Rw-76/1; Rw-76/3; Rw-76/4.

Epilohmannia pallida Wallwork, 1963

Locality: Rw-76/5: 1 specimen.

ORIBOTHRITIIDAE Grandjean, 1954

Indotritia septentrionalis Mahunka, 1986

Locality: Rw-76/3: 5 specimens.

Rhysotritia ardua C.L. Koch, 1841

Locality: Rw-76/5: 12 specimens.

CAMISIIDAE Oudemans, 1900

Heminothrus leleupi Balogh, 1958

Locality: Rw-76/4: 3 specimens.

MALACONOTHRIDAE Berlese, 1916

Malaconothrus cordisetus sp. n.

Localities: Rw-76/1; Rw-76/3.

NANHERMANIIDAE Sellnick, 1928

Nanhermannia quadridentata Balogh, 1958

Locality: Rw-76/4: 2 specimens.

LIACARIDAE Sellnick, 1928

Liacarus celisi Balogh, 1958

Locality: Rw-76/3: 2 specimens.

SUCTOBELBIDAE Grandjean, 1954

Rhynchoppia capillata (Balogh, 1963)

Locality: Rw-76/4: 1 specimen.

GALUMNIDAE Jacot, 1925

Mirogalumna xena gen. n., sp. n.

Localities: Rw-76/1; Rw-76/2.

DESCRIPTIONS

***Rhacaplacarus laterospinosus* sp. n.**

Measurements: Length of aspis: 266-370 μm , length of notogaster: 486-776 μm , height of notogaster: 311-567 μm .

Aspis: A well projecting median crista present. Rostral part of aspis and a part along the carina foveolate (Fig. 6), other surface smooth or basally with longitudinal rugae. Lateral carina strong, well observable, slightly waved. Rostral setae spiniform, smooth. Interlamellar setae strong, bacilliform; spinose and/or spiculate, but only on their anterior surface. Lamellar setae thinner, but also long (Fig. 1). Sensillus (Fig. 5) slightly lanceolate, its surface roughened. Exobothridial setae reduced, only their alveoli visible.

Notogaster: Ornamented by fine sculpture consisting of polygonate areae, which compose foveolae (Fig. 4). All notogastral setae bacilliform (Fig. 3), characteristically spinose and spiculate on their one side. Very great difference among their length, c_3 , h_3 and ps_4 the shortest, h_1 and ps_1 the longest. Lyrifissure *im* and *ips* also present.

Anogenital region: Surface of genital and anogenital plates also foveolate. Among the anoadanal setae ad_2 very long, nearly three times longer than ad_3 , and two and half times longer than ad_1 , an_1 and an_2 (Fig. 2).

Material examined: Holotype: Rw-76/1; 8 paratypes: from the same sample, 6 paratypes: Rw-76/4. Holotype and 9 paratypes: MHNG¹, and 5 paratypes (1149-PO-85): HNHM².

Remarks: The new species is well characterised by the long lamellar setae and the characteristic spinulose surface on the notogastral and interlamellar setae. On this ground it belongs to the relationship of *Rhacaplacarus inflatus* (Niedbala, 1984) and *R. amoena* (Niedbala, 1983); however, they are well distinguishing from the new species by their sensillus and the ratio among the notogastral setae.

Hoplophorella pustulata sp. n.

Measurements: Length of aspis: 300-345 μm , length of notogaster: 664-786 μm , height of notogaster: 356-494 μm .

Aspis: A well developed median crista present, therefore the outline of aspis angular from lateral view. Lateral carina present but not reaching to the lateral margin. Dorsal surface smooth, lateral surface between the carina and the margin ornamented by fine polygonate sculpture (Fig. 10). Rostral, lamellar and interlamellar setae minute (Fig. 9), exobothridial setae reduced. Sensillus (Fig. 8) sword shaped.

Notogaster: Anterior part reaching over the basal part of aspis (Fig. 7), its anterior and inner margin pustulate. Fifteen pairs of minute, filiform notogastral setae present, setae c_3 arising nearer to the notogastral margin than c_1 . Lyrifissure *ip* and *ips* not observable.

Anogenital region: All five pairs of setae of anoadanal plates short, nearly equal in length; setae ad_3 originates near to the other ones (Fig. 11). Setae ad_1 , an_1 and an_2 straight, ad_2 and ad_3 slightly curved.

Material examined: Holotype: Rw-76/2; 6 paratypes: from the same sample. Holotype and 4 paratypes: MHNG and 2 paratypes (1150-PO-85): HNHM.

Remarks: The new species is well characterised by the forward extended and postulate notogastral margin. On this ground it is well separated from all related species.

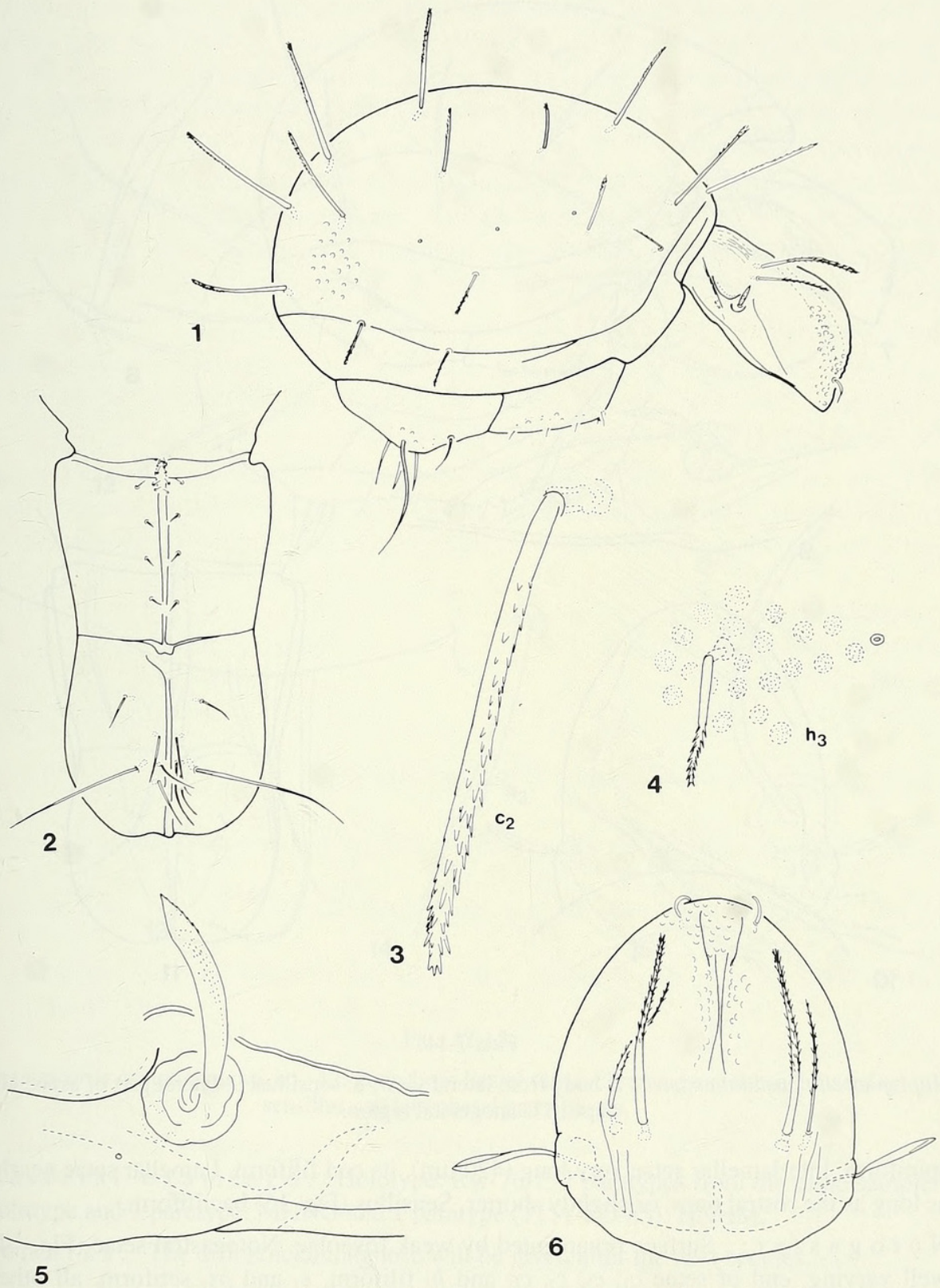
Stegnacarus complicatus sp. n.

Measurements: Length of aspis: 379-420 μm , length of notogaster: 746-810 μm , height of notogaster: 526-567 μm .

Aspis: Its dorsal margin from lateral view weakly concave medially. Lateral margin short, lateral carinae also weak and short. Its surface scarcely ornamented, some weak ribs basally and some foveolae dorsally observable. Rostral setae straight, erect, its end

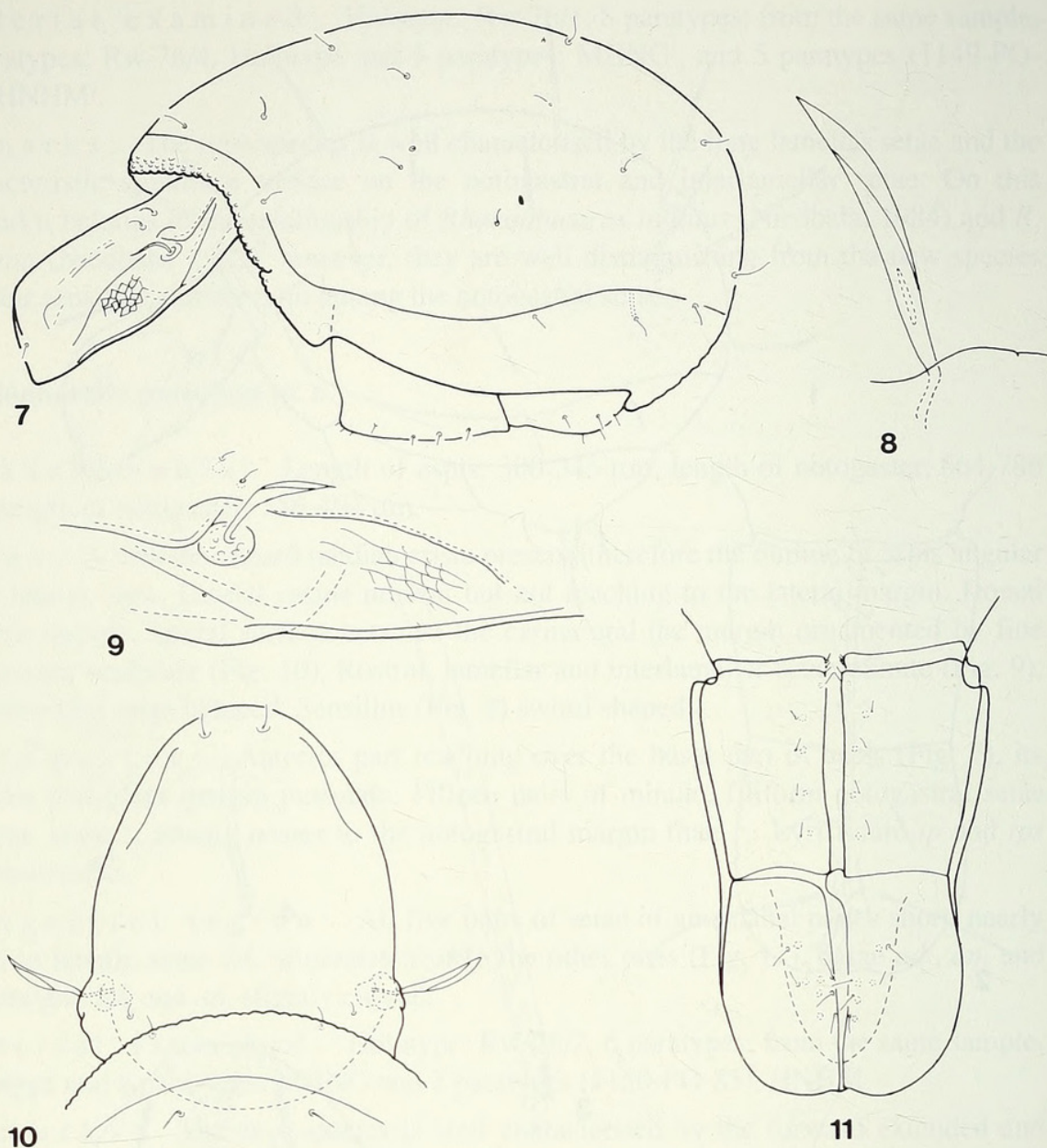
¹ MHNG = deposited in the Muséum d'Histoire naturelle, Genève.

² HNHM = deposited in the Hungarian Natural History Museum, Budapest, with identification number of the specimens in the Collection of Arachnida.



FIGS 1-6.

Rhacaplacarus laterospinosus sp. n. – 1: body from lateral view; 2: anogenital region; 3: seta c_2 ; 4: sculpture of notogaster and seta h_3 ; 5: sensillus and laterobasal part of aspis; 6: aspis.



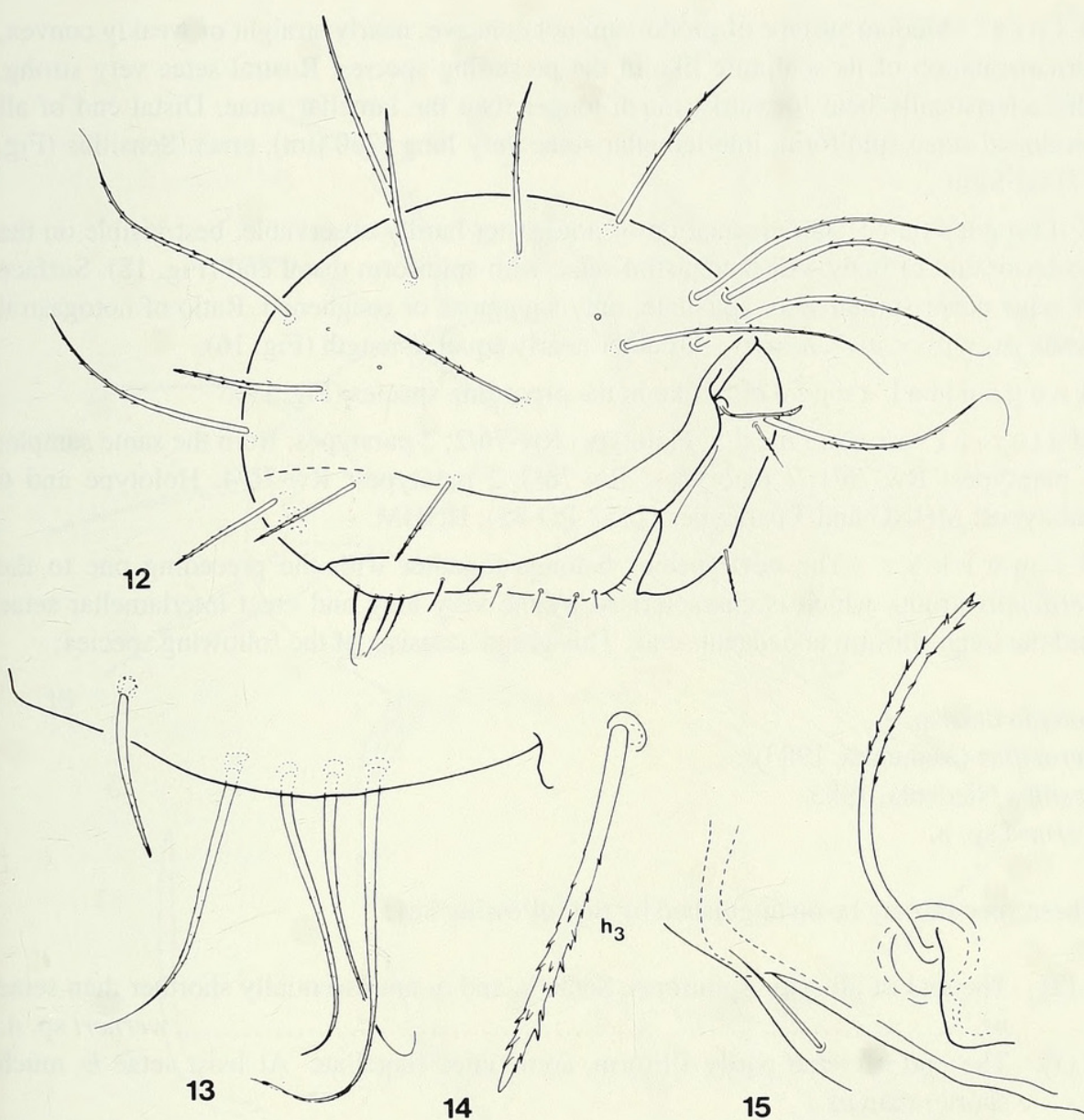
FIGS 7-11.

Hoplophorella pustulata sp. n. – 7: body from lateral view; 8: sensillus; 9: lateral part of aspis; 10: aspis; 11: anogenital region.

spiniiform. Interlamellar setae very long (420 μm), its end filiform. Lamellar setae nearly as long as the rostral ones, or slightly shorter. Sensillus (Fig. 15) bacilliform.

Notogaster: Surface ornamented by weak foveolae. Notogastral setae (Fig. 14) well varying, end of setae c_1 , c_2 , c_3 , cp and h_1 filiform, e_1 and ps_1 setiform, all other spiniiform (Fig. 12). All setae well spiculate, sometimes spinose. Among all filiform setae the longest: h_1 , ratio of the others: $ps_3 = ps_4 < ps_2 = h_3 < d_2 < h_2 < e_2 < ps_1 = e_1$.

Anogenital region: Among the anoadanal setae four pairs originate on the inner margin of anoadanal plates, all filiform. Setae ad_3 much shorter and spiniiform (Fig. 13).



FIGS 12-15.

Steganacarus complicatus sp. n. – 12: body from lateral view; 13: anoanal setae; 14: seta h_3 ; 15: sensillus and laterobasal part of aspis.

Material examined: Holotype: Rw-76/1; 2 paratypes from the same sample. Holotype and 1 paratype: MHNG and 1 paratype (1151-PO-85): HHNM.

Remarks: The differential diagnose will be given after the next species.

***Steganacarus wernerii* sp. n.**

Measurements: Length of aspis: 340-422 μm , length of notogaster: 640-810 μm , height of notogaster: 445-567 μm .

A s p i s : Median surface of prodorsum not concave, nearly straight or weakly convex. Ornamentation of its sculpture like in the preceding species. Rostral setae very strong, characteristically bent forwards, much longer than the lamellar setae. Distal end of all prodorsal setae spiniform, interlamellar setae very long (260 μm), erect. Sensillus (Fig. 17) setiform.

N o t o g a s t e r : Ornamentation of notogaster hardly observable, best visible on the posterior end of body. All notogastral setae with spiniform distal end (Fig. 18). Surface of setae never spinulose or spiculate, only squamose or roughened. Ratio of notogastral setae: $ps_4 < ps_3 < ps_2 < h_3 = ps_1$. All other nearly equal in length (Fig. 16).

A n o g e n i t a l r e g i o n : Like in the preceding species (Fig. 19).

M a t e r i a l e x a m i n e d : Holotype: Rw-76/2; 2 paratypes: from the same sample; 3 paratypes: Rw-76/1; 2 paratypes: Rw-76/3; 2 paratypes: Rw-76/4. Holotype and 6 paratypes: MHNG and 3 paratypes (1152-PO-85): HNHM.

R e m a r k s : The new species belongs together with the preceding one to the *peracutus* group, which is characterised by the very long and erect interlamellar setae and the long, filiform anoadanal setae. This group³ consists of the following species:

complicatus sp. n.

peracutus (Mahunka, 1983)⁴

vestitus Niedbala, 1983

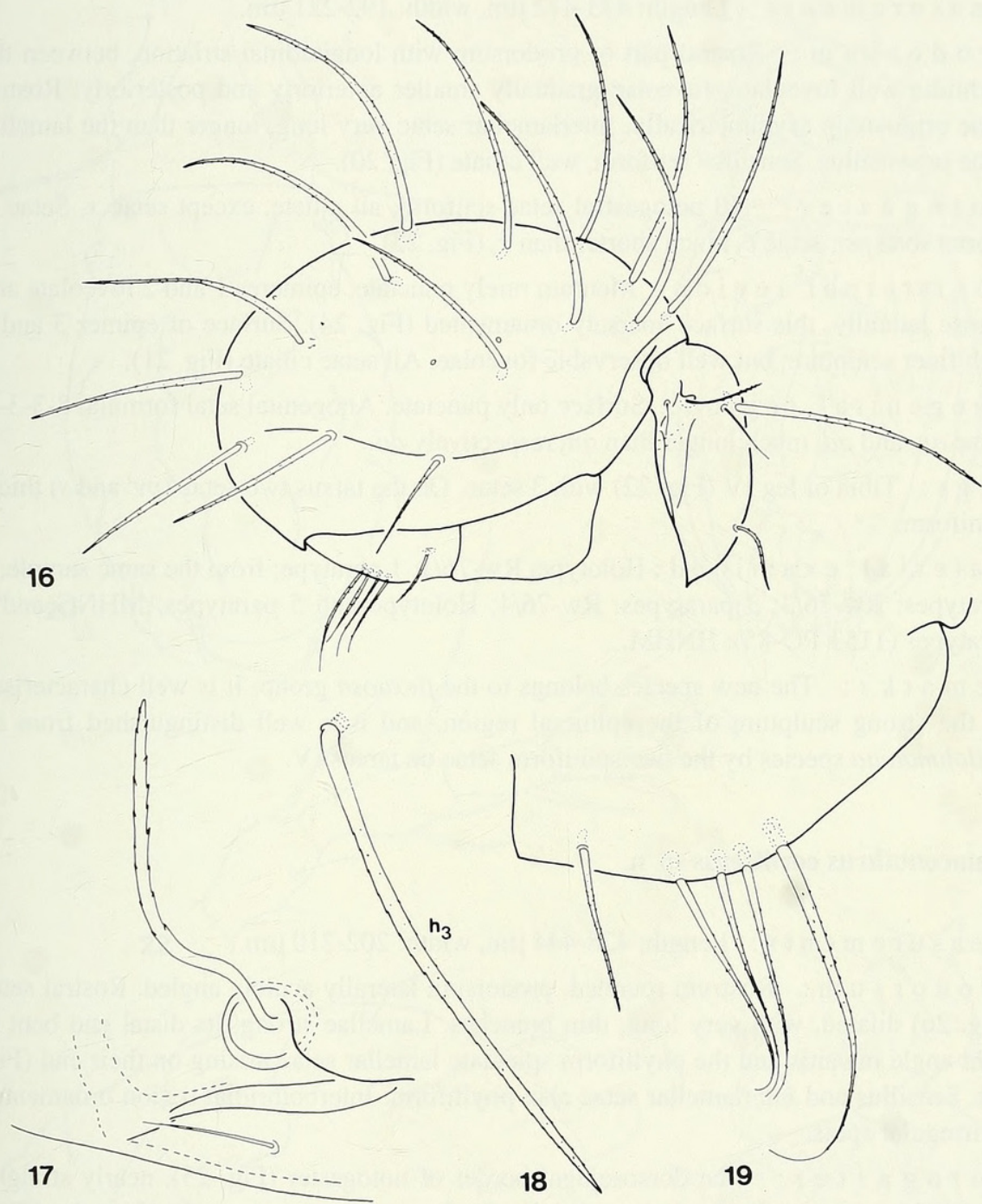
weneri sp. n.

These species may be distinguished by the following key:

- 1 (2) The end of all setae spiniform. Setae h_3 and e_2 not essentially shorter than setae ps_1 *weneri* sp. n.
- 2 (1) The end of setae partly filiform, sometimes flagellate. At least setae h_3 much shorter than ps_1 .
- 3 (4) Setae ps_2 very short, shorter than h_3 or e_2 . Setae h_2 much shorter than ps_1 *complicatus* sp. n.
- 4 (3) Setae ps_2 much longer than h_3 . Setae h_2 nearly as long as setae ps_1 .
- 5 (6) End of interlamellar setae flagellate. Setae d_1 , d_2 , e_2 , h_4 , ps_3 and ps_4 short, nearly equal in length *vestitus* Niedbala, 1983
- 6 (5) End of interlamellar setae spiniform. Setae d_1 , d_2 and e_2 much longer than h_4 , ps_3 and ps_4 *peracutus* (Mahunka, 1983)

³ Formerly I placed on the ground of the erected interlamellar setae also in this group the species *Hoplophorella aokii* Mahunka, 1983 and *H. marginatus* Mahunka, 1984 together with *H. peracutus* Mahunka, 1983. If we accept Niedbala's opinion, we must divide the hedgehog-like species in two groups; *H. aokii* and *H. marginatus* belong to the genus *Hoplophthiracarus*, all other in the genus *Steganacarus*.

⁴ *Hoplophthiracarus peracutus* Mahunka, 1983 = *Steganacarus peracutus* (Mahunka, 1983) comb. nov.



FIGS 16-19.

Steganacarus werner sp. n. — 16: body from lateral view; 17: sensillus and laterobasal part of aspis; 18: seta h_3 ; 19: anoadanal setae.

***Epilohmannia ornata* sp. n.**

Measurements: Length: 433-472 μm , width: 192-221 μm .

Prodorsum: Rostral part of prodorsum with longitudinal striation, between the borhtidia well foveolate, foveolae gradually smaller anteriorly and posteriorly. Rostral setae originating asymmetrically. Interlamellar setae very long, longer than the lamellar setae or sensillus. Sensillus setiform, well ciliate (Fig. 20).

Notogaster: All notogastral setae setiform, all ciliate, except setae x . Setae c_1 shorter than ps_1 , setae c_3 much shorter than c_2 (Fig. 23).

Coxisternal region: Mentum rarely punctate, epimeres 1 and 2 foveolate and rugose laterally, this surface coarsely ornamented (Fig. 24). Surface of epimer 3 and 4 with finer sculpture, but well observable foveolae. All setae ciliate (Fig. 21).

Anogenital region: Surface only punctate. Anogenital setal formula: 8-3-3-3. Setae an_1 and ad_1 much longer than an_3 respectively ad_3 .

Legs: Tibia of leg IV (Fig. 22) with 3 setae. On the tarsus two setae (pv' and s) thick, spiniform.

Material examined: Holotype: Rw-76/1; 1 paratype: from the same sample; 3 paratypes: Rw-76/3; 3 paratypes: Rw-76/4; Holotype and 5 paratypes: MHNG and 2 paratypes (1153-PO-85): HNHM.

Remarks: The new species belongs to the *flexuosa* group. It is well characterised by the strong sculpture of the epimeral region, and it is well distinguished from all *Epilohmannia* species by the two spiniform setae on tarsus IV.

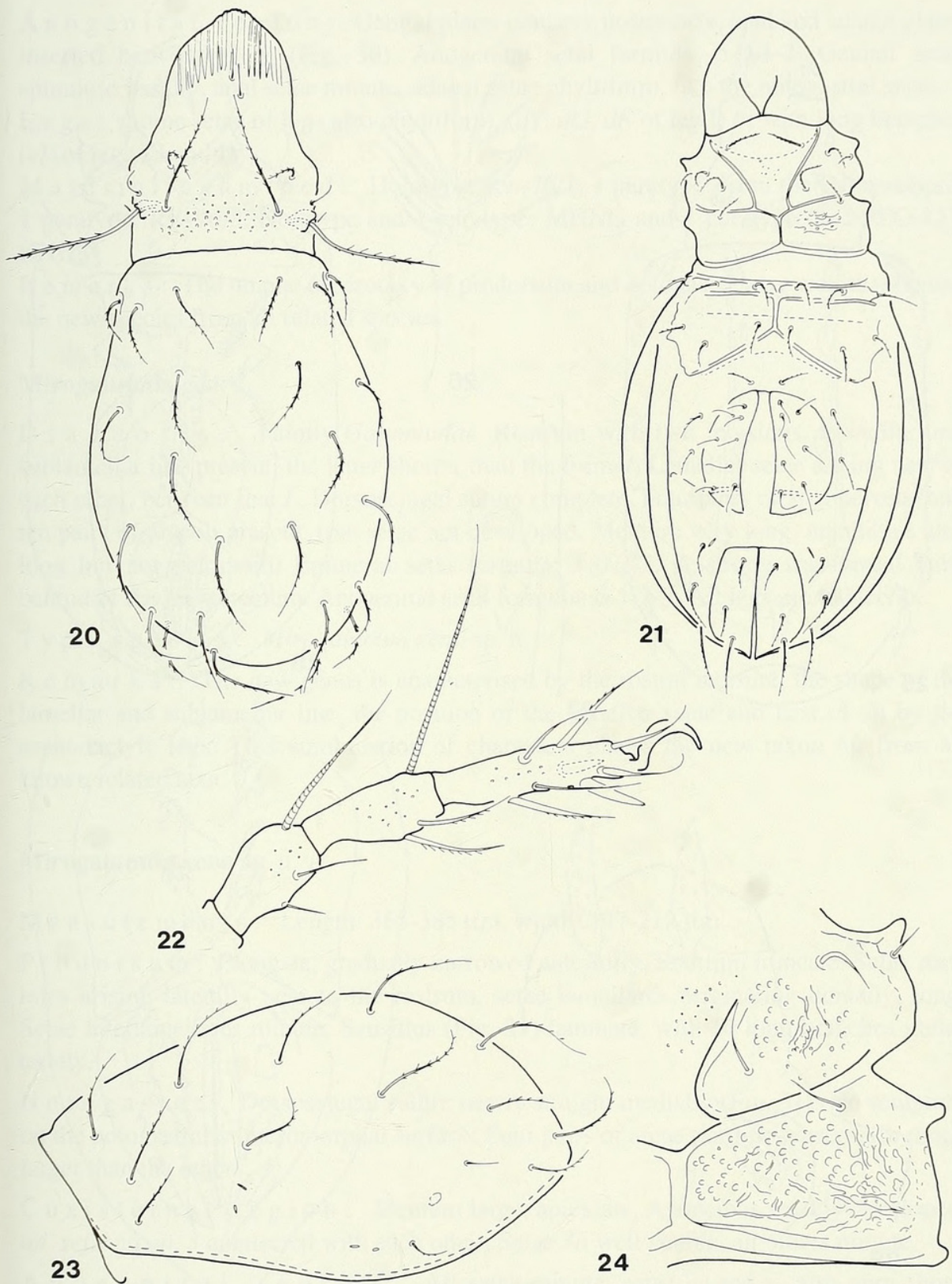
***Malaconothrus cordisetus* sp. n.**

Measurements: Length: 428-444 μm , width: 202-210 μm .

Prodorsum: Rostrum rounded, prodorsum laterally acutely angled. Rostral setae (Fig. 26) dilated, with very long, thin branches. Lamellae strong, its distal end bent in right angle inwards and the phylliform spiculate lamellar setae arising on their end (Fig. 29). Sensillus and interlamellar setae also phylliform. Interbothridial region ornamented by irregular spots.

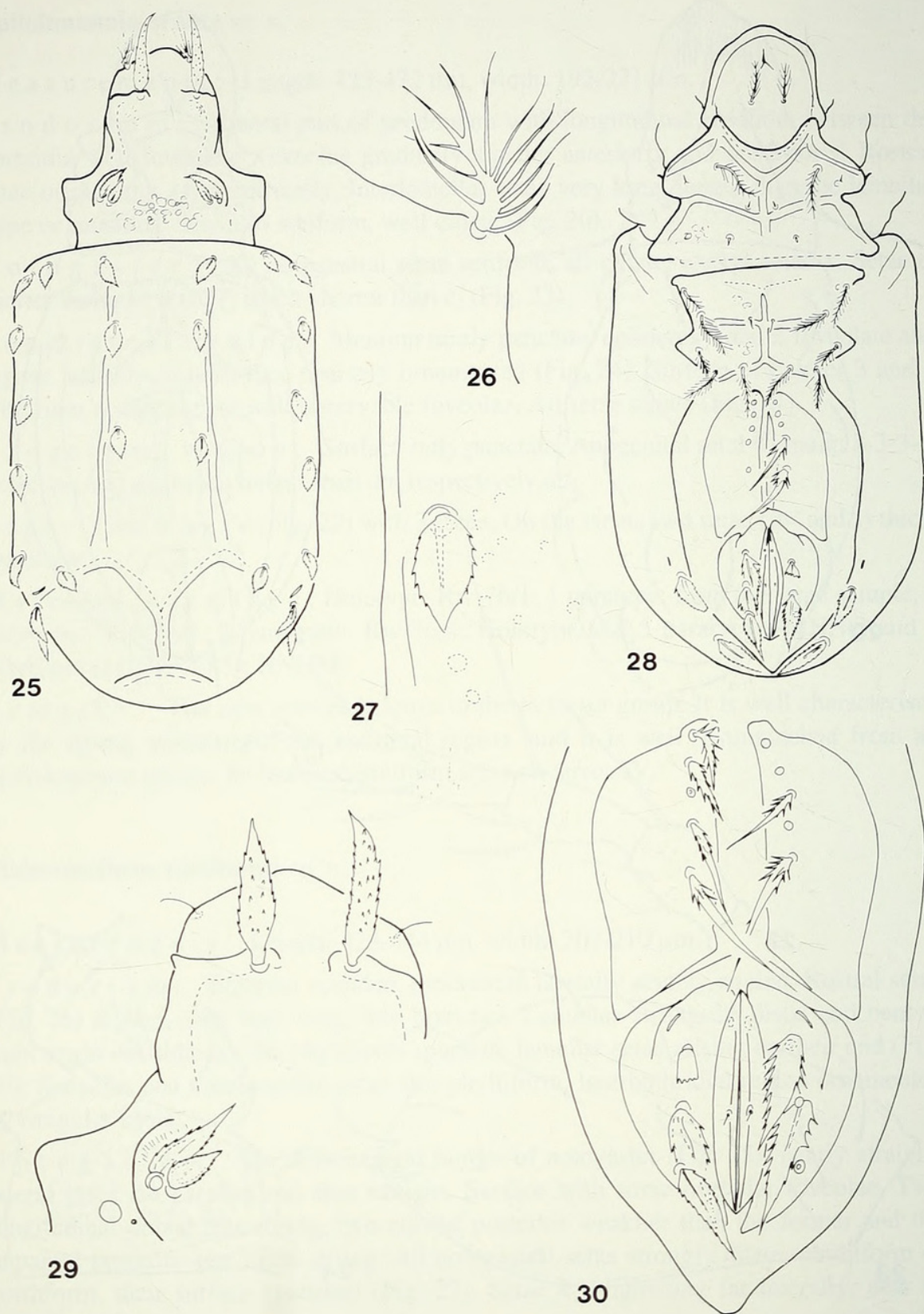
Notogaster: The dorsosejugal border of notogaster (Fig. 25), nearly straight, lateral rides are parallel and also straight. Surface with some irregular foveolae. Two longitudinal dorsal ribs strong, two curved posterior weaklier than the former and the unpaired posterior one again strong. All notogastral setae strongly dilate, phylliform or cordiform, their surface spiculate (Fig. 27). Setae h_1 originating far laterally, near to setae h_2 and h_3 .

Coxisternal region: Epimeral surface with irregular spots, epimeral setal formula: 3-1-3-3, among them setae $1a$, $2a$, $3a$ simple, all other long, with very long cilia (Fig. 28).



FIGS 20-24.

Epilohmannia ornata sp. n. – 20: dorsal side; 21: ventral side; 22: leg IV; 23: notogaster from lateral view; 24: surface of epimer I and II.



FIGS 25-30.

Malaconothrus cordisetus sp. n. – 25: dorsal side; 26: rostral seta; 27: notogastral seta; 28: ventral side; 29: prodorsum; 30: anogenital region.

Anogenital region: Genital plates concave posteriorly, anal and adanal plates inserted between them (Fig. 30). Anogenital setal formula: 5-0-1-3. Genital setae spinulose basally, anal setae minute, adanal setae phylliform, like the notogastral setae.

Legs: Some setae of legs also phylliform, (*dT*, *dG*, *dF* of leg I) or with long branches (*vF* of legs III and IV).

Material examined: Holotype: Rw-76/1; 1 paratype: from the same sample; 1 paratype: Rw-76/3. Holotype and 1 paratype: MHNG and 1 paratype (1154-PO-85): HNHM.

Remarks: The unique chaetotaxy of prodorsum and notogaster may well distinguish the new species from all related species.

Mirogalumna gen. n.

Diagnosis: Family *Galumnidae*. Rostrum with two incisions. Lamellar and sublamellar line present, the latter shorter than the former. Lamellar setae arising near to each other, between line *L*. Dorsosejugal suture complete. Four pairs of area porosae and ten pairs of alveoli present, true setae not developed. Mentum very long, mandibles also long but not peloptoid. Epimeral setal formula: 1-0-2-2. A strong transversal laths behind of the mentotectum. Anogenital setal formula: 6-1-2-3. All legs monodactyle.

Type species: *Mirogalumna xena* sp. n.

Remarks: The new genus is characterised by the rostral incisure, the shape of the lamellar and sublamellar line, the position of the lamellar setae and first of all by the monodactyle legs. This combination of characters places the new taxon far from all known related taxa.

Mirogalumna xena sp. n.

Measurements: Length: 365-385 μm , width: 197-212 μm .

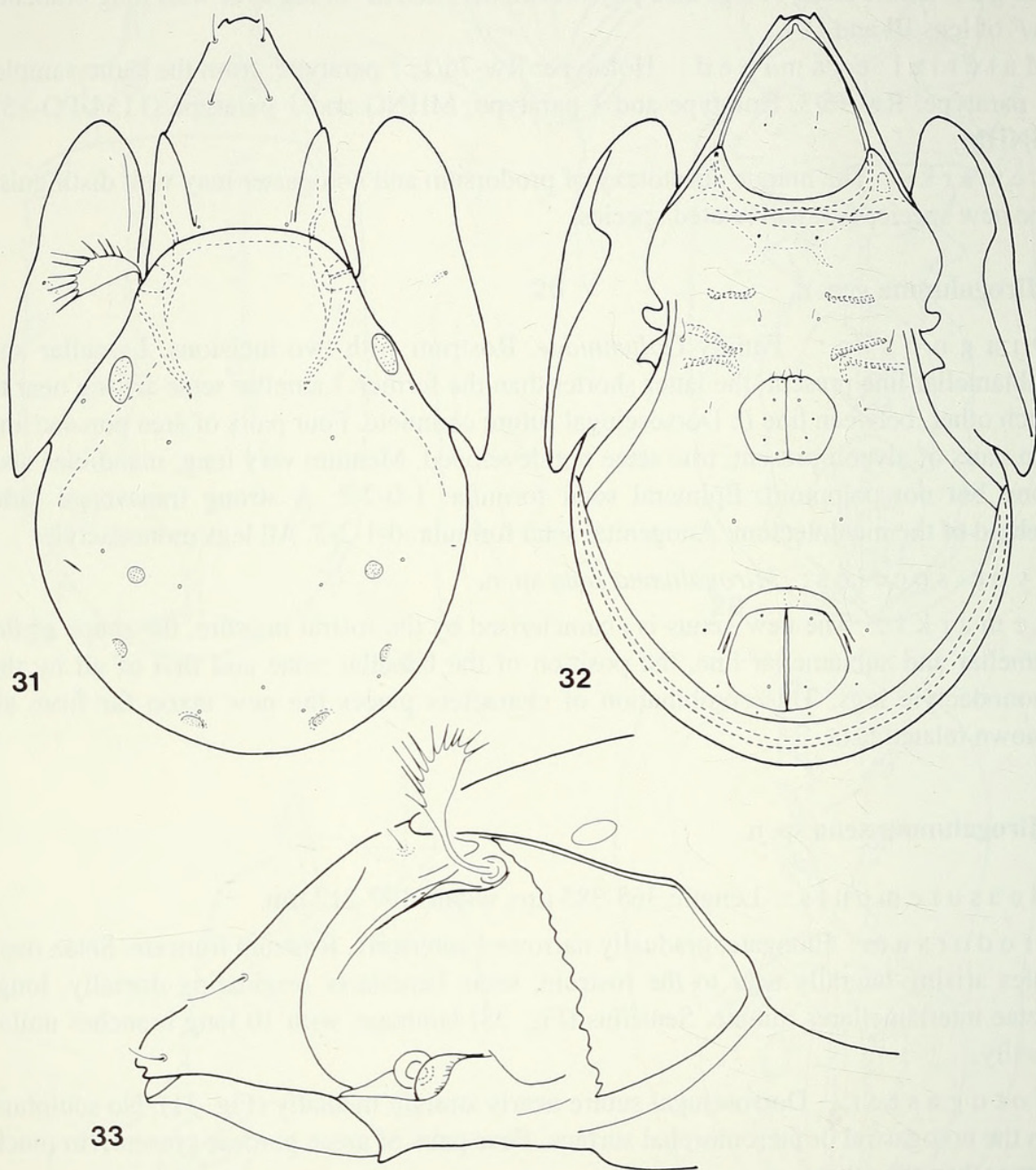
Prodorsum: Elongate, gradually narrowed anteriorly. Rostrum truncate. Setae rostrales arising laterally near to the rostrum, setae lamellares originating dorsally, long. Setae interlamellares minute. Sensillus (Fig. 33) laminate, with 10 long branches unilaterally.

Notogaster: Dorsosejugal suture nearly straight medially (Fig. 31). No sculpture on the notogastral or pteromorph surface: Four pairs of areae porosae present, *Aa* much larger than the others.

Coxisternal region: Mentum large, apiculate. Apodemes weakly developed, *ap. sej.* and *ap. 3* connected with each other. Setae *3b* well visible, all others minute.

Anogenital region: All setae minute, setae *g*₅ and *g*₆ also very short. Lyrifissure *iad* well visible, long (Fig. 32).

Material examined: Holotypus: Rw-76/2; 11 paratypes: from the same sample; 2 paratypes: Rw-76/1. Holotypus and 9 paratypes: MHNG and 4 paratypes (1155-PO-85): HNHM.



FIGS 31-33.

Mirogalumna xena gen. n., sp. n. — 31: dorsal side; 32: ventral side; 33 prodorsum from lateral view.

R e m a r k s : The new species does not have any particularly related species among the heretofore known Galumnoidea.

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