

Oribatids from the Carpathian Basin with zoogeographical and taxonomical notes (Acari: Oribatida)

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Abstract. A list of oribatids collected at several sites in the Carpathian Basin includes 32 species. The researches yielded some species new for the area examined and two (*Dissorhina longispina* and *Conchogneta vasiliorum* spp. n.) new to science. Some taxonomical notes on rare or little known species (e.g. in family Autognetidae) and notes on zoogeographical distribution of some species are presented. With 20 figures.

The main goal of our research was to explore the origin of the oribatid fauna of Hungary, and in other side to publish of data of rare and little known species in the studied territory. Our researches were, on the one hand, partly supported by the OTKA (T-45889), and on the other, by the National R&D project (No. 3B023-04) titled: The zoological values and the focal area of the fauna of the Carpathian Basin.

These researches have been carried out for many years. We successfully proved (MAHUNKA & MAHUNKA-PAPP 2004) that the oribatid fauna living in the present-day Hungary i.e. the central part of the Carpathian Basin (the faunistical and taxonomical results are present in different series of publications)*, and living in other parts of this region (today Slovakia, Romania, Croatia) (e.g. MAHUNKA 2006). In every respect of the fauna of the whole Carpathian Basin especially interesting and significant are the taxa living in Transylvania. Therefore we concentrated our studies to the Transylvanian region.

Several oppiids and autognetid taxa of the Transylvanian species are especially important and interesting for the relationships in the group. Therefore in connection of one *Dissorhina* HULL, 1918 and one *Conchogneta* GRANDJEAN, 1963 species I studied some specimens of this group

also from different European localities. Some taxonomical notes of them are given hereunder.

I examined also some species from zoogeographical point of view. It was remarkable to note the high number of the endemic species and the similarity the Transylvanian (Carpathian) and the alpine (South-Switzerland: Wallis) fauna.

The field work was made and organised by CS. CSUZDI, J. KONTSCHÁN, D. MURÁNYI, A. OROSZ and T. PÓCS and/or their co-workers. So far three samplings have been performed, whose materials are extracted in Budapest. The elaboration of the extracted species is continuous. The voucher specimens are deposited in the Pedozoological Collection of the Hungarian Natural History Museum and some in the Collection of Musée d'Histoire naturelle, Gèneve.

Our research proved the presence of 32 species, of which 2 species are new to science, and 8 are rare or little known in the examined area. In discussing 7 species I surveyed their distribution or completed some descriptions.

In this paper I usually follow the system of MARSHALL et al. (1987), with some modifications introduced by WOAS (2002), SUBÍAS (2004) and WEIGMANN (2006). In the description the morphological terminology of WOAS (2002) was used with some modifications of the studied groups (e.g. NORTON & al. 1997, MAHUNKA & MAHUNKA-PAPP 2001).

*Contributions to the knowledge of the Hungarian Oribatida fauna (Acari).

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LIST OF LOCALITIES

SLOVAKIA

- E-1061 Dolno Lehota, Vajkorska dolina, Nizke Tatry, soil and litter in pine forest, 22.04.1983, leg. F. MÉSZÁROS
E-1295 Stos-Kupele, litter, 16-18.06.1987, leg. S. MAHUNKA
E-1390 Dedinky, Belij voda, wet litter and moss from rocky wall, 02.07.1991, leg. S. MAHUNKA
E-1613 Zadiel, Szádelő valley, moss from rocky wall, 08.10.2003, leg. E. HORVÁTH

ROMANIA

- E-1576 Transylvania, Retezat Mts., Cabana Buta, 1500 m, wet moss from stones, 07.09.2002, leg. A. OROSZ
E-1677 Transylvania, Retezat Mts., Lapusnyik valley, cca. 1200 m, spruce-wood, 02.07.2005., leg. Cs. CSUZDI
E-1678 Transylvania, Gutin pass, 900 m, beech-wood, 03.07.2005., leg. Cs. CSUZDI
E-1679 Transylvania, Vlegyásza Mt., below the hospice, 1300 m, spruce-wood, 01.07.2005. leg. Cs. CSUZDI
E-2045 Bihor county, Padiş Mts, Staþiunea Boga, Bazarul Someşului, 900 m, beech litter, 17.07.2006., leg. D. MURÁNYI
E-2046 Bihor county, Padiş Mts, Staþiunea Boga, Bazarul Someşului, 900 m, litter, 17.07.2006., leg. D. MURÁNYI
E-2048 Bihor county, Padiş Mts, Staþiunea Boga, Aragyásza Cave, 1300 m, *Sphagnum* and other moss near the entrance of cave, 18.07.2006., leg. D. MURÁNYI
E-2049 Bihor county, Padiş Mts, Staþiunea Boga, 1350 m, pine litter and forest soil, 17.07.2006., leg. D. MURÁNYI

LIST OF THE NEWLY IDENTIFIED SPECIES

BRACHYCHTHONIIDAE THOR, 1934

- Eobrachychthonius borealis* FORSSLUND, 1942
Locality: Slovakia, E-1295.
Liochthonius horridus (SELLNICK, 1928)
Locality: Romania, E-1677.
Liochthonius leptaleus MORITZ, 1976
Locality: Romania, E-2048.
Sellnickochthonius hungaricus BALOGH, 1943
Locality: Romania, E-2048; Slovakia, E-1295.

ORIBOTRITIIDAE GRANDJEAN, 1954

- Protoribotritia oligotricha* MÄRKEL, 1963
Locality: Romania, E-2045.

MALACONOTHRIDAE BERLESE, 1916

- Malacothrus monodactylus* (MICHAEL, 1888)
Locality: Romania, E-1576.

- Trimalaconothrus angulatus* WILLMANN, 1931
Locality: Romania, E-1576.

LICNODAMAEIDAE GRANDJEAN, 1954

- Licnodamaeus undulatus* (PAOLI, 1908)
Locality: Slovakia, E-1613.

CARABODIDAE C. L. KOCH, 1837

- Carabodes tenuis* FORSSLUND, 1953
Locality: Romania, E-1678; Slovakia, E-1061.

AUTOGNETIDAE GRANDJEAN, 1960

- Autogneta parva* FORSSLUND, 1947
Locality: Romania, E-2048.

- Conchogneta traegardhi* (FORSSLUND, 1947)
Locality: Romania, E-2045.

- Conchogneta vasiliorum* sp. n.
Locality: Romania, E-2045

- Conchogneta willmanni* (DYRDOWSKA, 1929)
Locality: Romania, E-2045.

OPPIIDAE SELLNICK, 1937

- Dissorhina longispina* sp. n.
Locality: Romania, E-2048

- Dissorhina ornata* (OUDEMANS, 1900)
Locality: Romania, E-2045.

- Multioppia (Multilanceoppia) carpatica* (SCHALK, 1966)
Locality: Romania, E-2049.

- Oppiella acuminata* (STRENZKE, 1951)
Locality: Romania, E-2048.

- Oppiella (Rhinoppia) getica* (VASILIU & CALUGAR, 1981)
Localities: Romania, E-2046, E-2047.

MACHUELLIDAE BALOGH, 1983

- Machuella bilineata* WEIGMANN, 1976
Locality: Slovakia, E-1613.

SUCTOBELBIDAE JACOT, 1938

- Rhynchobelba ornithorhyncha* (WILLMANN, 1953)
Locality: Romania, E-2045.

- Suctobelba altvateri* MORITZ, 1976
Locality: Romania, E-1677.

Suctobelba reticulata MORITZ, 1976

Locality: Slovakia, E-1390.

Suctobelbata prelli MÄRKEL & MEYER, 1958

Locality: Romania, E-2048.

Suctobelbella forsslundi (STRENZKE, 1950)

Locality: Romania, E-1678.

Suctobelbella moritzi MAHUNKA, 1987

Locality: Slovakia, E-1390.

Suctobelbella similis (FORSSLUND, 1941)

Locality: Romania, E-1677.

Suctobelbella subcornigera (FORSSLUND, 1941)

Locality: Romania, E-1677.

LIMNOZETIDAE THOR, 1937

Limnozetes ciliatus (SCHRANK, 1803)

Locality: Romania, E-1576.

ORIBATELLIDAE JACOT, 1925

Ophidiotrichus tectus (MICHAEL, 1884)

Locality: Romania, E-1678.

Oribatella dudichi WILLMANN, 1938

Locality: Romania, E-2049; Slovakia, 1295.

Oribatella eutricha BERLESE, 1908

Locality: Romania, E-1576.

GALUMNIDAE JACOT, 1925

Pilogalumna tenuiclava WILLMANN, 1938

Locality: Romania, E-1576.

**DESCRIPTIONS OF NEW AND NOTES ON
RARE SPECIES**

***Protoribotritia oligotricha* MÄRKEL, 1963**

This is a boreo-alpine species from the Holarctic region occurring rarely and in all cases in small individual number. Only recently was it proved to exist in the Nearctic region (NIEDBALA 2002). In the Palearctic it had been shown from Sweden, and not yet in the area just under study. Most likely it is a glacial relict species here.

The presently studied single specimen displays small morphological differences diverging from the type (MÄRKEL 1963) and also from NIEDBALA's description and published figures. In

other words, the earlier descriptions make on reference as to the position and the number of notogastral pori, whereas in the present specimen five pairs of pori clearly discernible, *ip* especially robust (Fig. 1). The sensillus of our specimen is much bigger specifically the breadth its head is much more striking than in the earlier figures (Fig. 2), furthermore, the sculpture of the aspis is comprised exclusively fine lines. The fine sculpture is also clearly seen on the notogaster. The numbers of genital setae are 7 and 8, respectively (Fig. 3).

Locality: Romania, Transylvania (E-2045).

***Dissorhina longispina* sp. n.**

Material examined. Holotype (HNHM¹ 11723-HO-2007): Romania, Bihor county, Padiş Mts, Staþiunea Boga, Aragyásza Cave, 1300 m, *Sphagnum* and other moss near the entrance of cave, 18. 07. 2006., leg. D. MURÁNYI (E-2048). Paratypes (HNHM 1723-PO-2007) 1 ex., (MHNG) 1 ex., locality same as that of the Holotype.

Diagnosis: Rostral apex separated by two incisions, sharply pointed, Prodorsal surface with complicated costulae. Sensillus very long, lanceolate, smooth. Lamellar setae very short, interlamellar setae much longer. Ten pairs of notogastral setae. Apodemes weakly developed, no connection between *ap. 2* and *ap. sej.* Aggenital and adanal setae very short.

Measurements. Length of body: 290-301 µm, width of body: 140-147 µm.

Prodorsum. Rostral apex narrow, triangular (Fig. 6) bearing the bent rostral setae, they arise very near to each other, well pilose. A pair of deep and comparatively deep, large incisions present along it. Prodorsal structure (Fig. 4) well developed, characteristic for the genus *Dissorhina* Hull, 1918. Lamellar setae arising separately from

¹ HNHM: deposited in the Hungarian Natural History Museum, Budapest, with identification number of the specimens in the Collection of Arachnids. MHNG: deposited in the Muséum d'histoire naturelle, Genève.

the costulae, being much shorter than the interlamellar ones. Sensillus very long, its head lanceolate, sharply pointed, without cilia (Fig. 7).

Notogaster. Dorsosejugal suture strongly narrowed anteriorly, straight medially. Ten pairs of comparatively short notogastral setae present, setae c_2 shorter than the others.

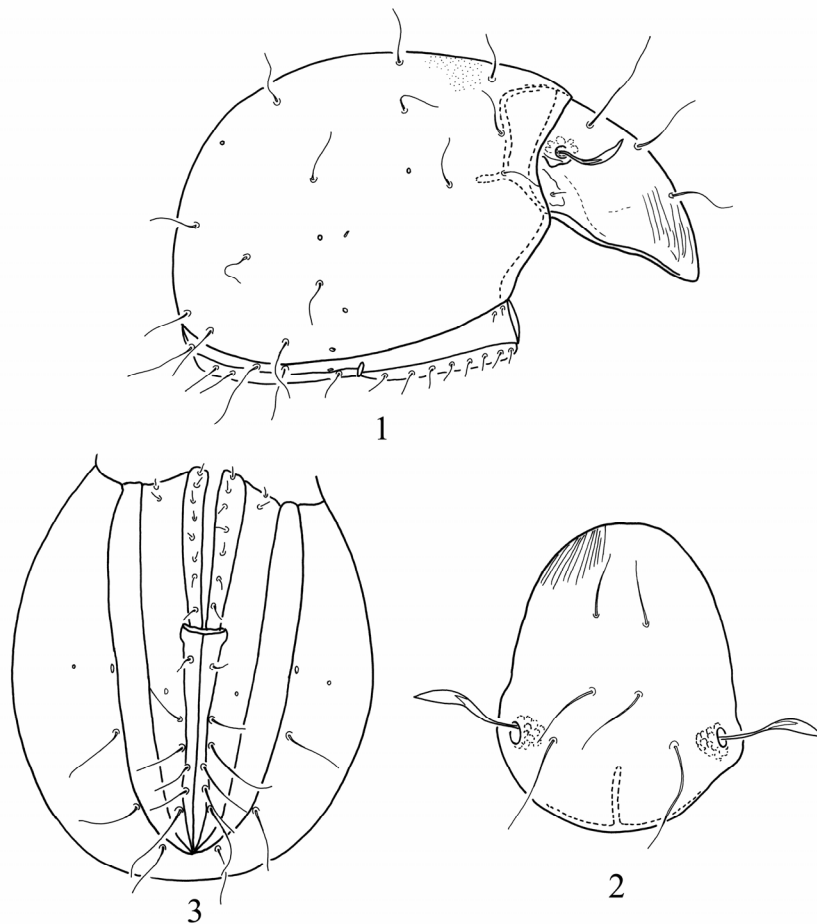
Lateral part of podosoma: As shown in Fig. 7.

Ventral regions (Fig. 5). Apodemes and epimeral borders weakly developed. Sternal apodema partly reduced, partly absent or not observable anteriorly and between *ap. 2.* and *ap. sej.* A pair of peculiarly oval field present in the sejugal region, on *bo. sej.* All epimeral setae short, no essential difference among them. Genito-anal setal formula: 5 – 1 – 2 – 3. Anterior

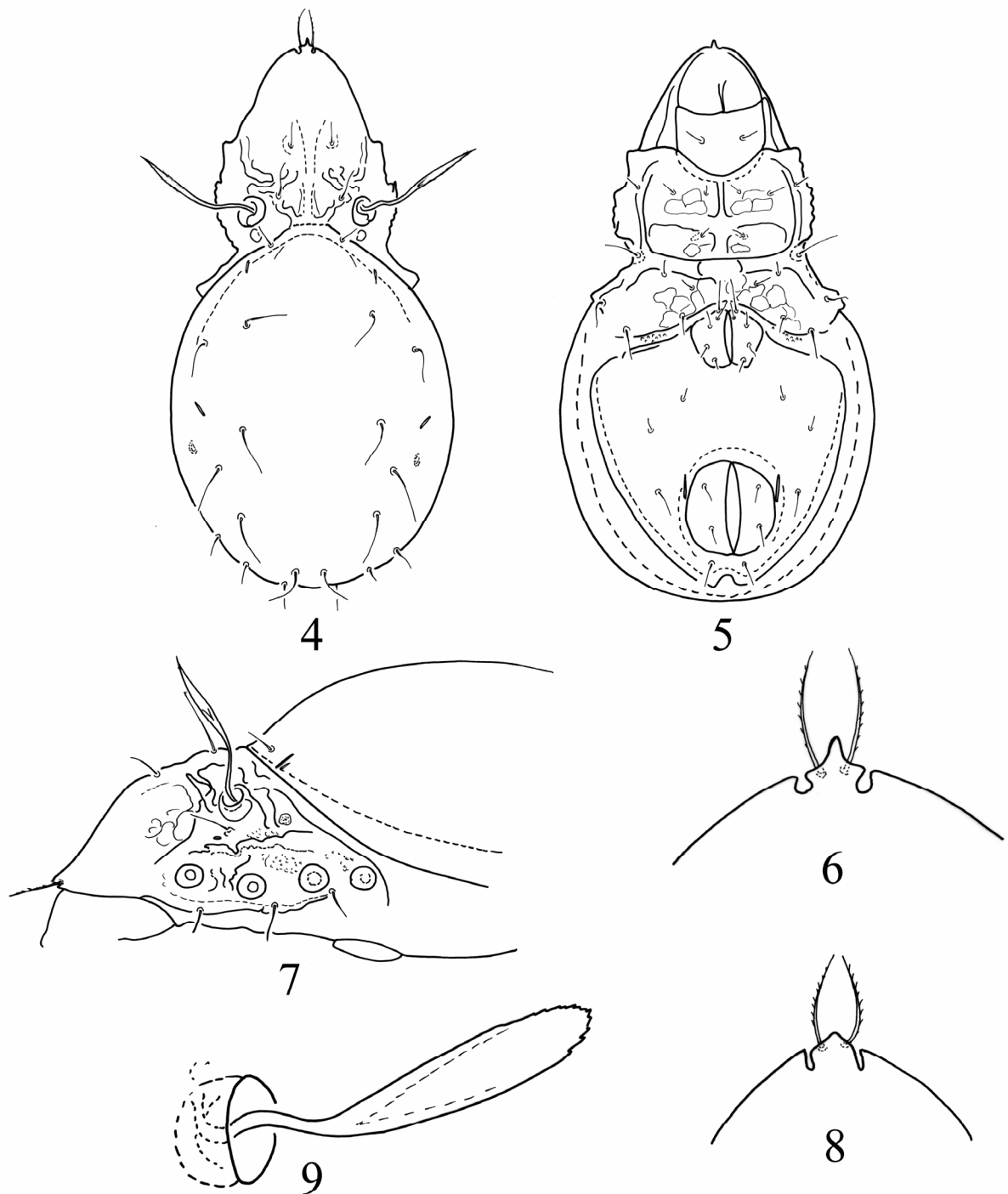
pair of genital setae long, much longer than the others. Aggenital, anal and adanal setae nearly equal in length, all short. Ventral plate with an unpaired depression in posteromarginal position.

Remarks. The new species is well characterised by the narrow, elongated rostral apex and the smooth and peculiarly long, lanceolate sensillus. This combination of characters is unknown in the heretofore described species, e.g. *Dissorhina ornata* OUDEMANS, 1900 (Figs. 8-9).

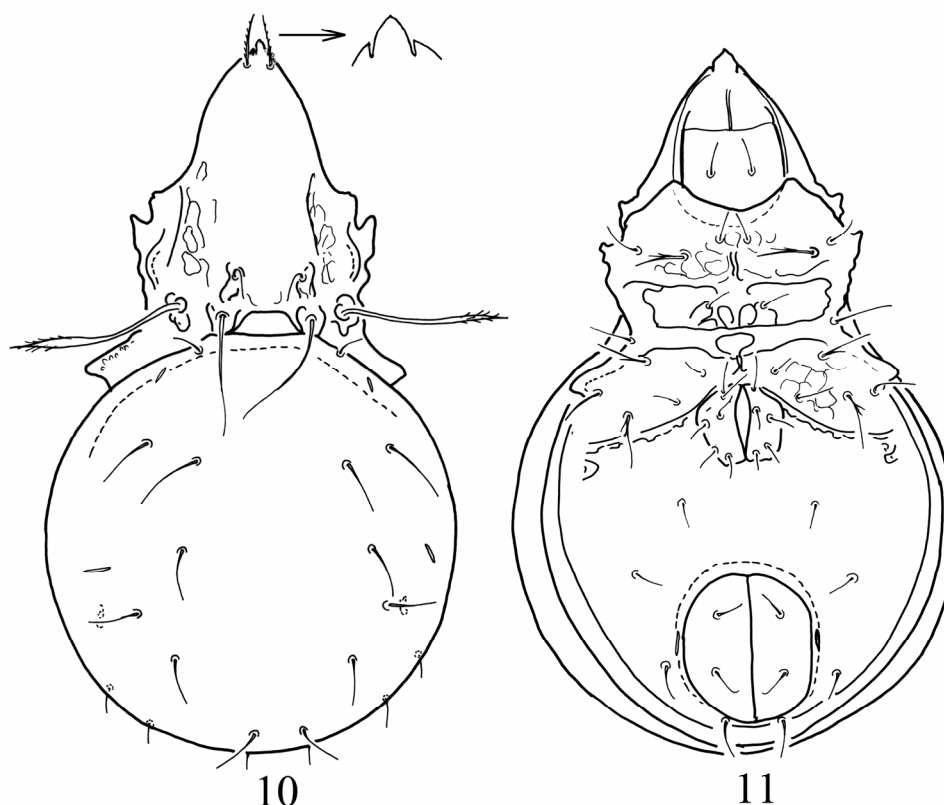
Etymology. The new species is named after the form of the sensillus.



Figures 1-3. *Protoribotritia oligotricha* MÄRKEL, 1963. 1: body in lateral view, 2: aspis in dorsal view, 3: anogenital region



Figures 4-7. *Dissorhina longispina* sp. n. 4: body in dorsal view, 5: body in ventral view, 6: rostrum, 7: prodorsum in lateral view. **Figures 8-9.** *Dissorhina ornata* (OUDEMANS, 1900). 8: rostrum, 9: sensillus



Figures 10-11. *Oppiella (Rhinoppia) getica* (VASILIU & CALUGAR, 1981). 10: body in dorsal view, 11: body in ventral view

***Oppiella (Rhinoppia) getica* (VASILIU & CALUGAR, 1981) comb. n.**

The newly collected and identified specimens without doubts are identical with the described specimens by VASILIU and CALUGAR (1981). I give drawings (Figs. 10-11) from the studied specimens.

I agree with MIKO (in WEIGMANN 2006), who – on contrary to SUBÍAS (2004) – placed this species in relationships to the *Oppiella (Rhinoppia)* BALOGH 1983. It is supported by the form of the rostrum, the shape of the prodorsal costulae, the position of the notogastral setae and by the apodemes, the borders of the epimeral costulae and the peculiar, branching epimeral setae.

**Notes on the family Autognetidae
GRANDJEAN, 1960**

***Autogneta parva* FORSSLUND, 1947**

It is a Palearctic species, everywhere common in forests.

***Conchogneta traegardhi* (FORSSLUND, 1947)**

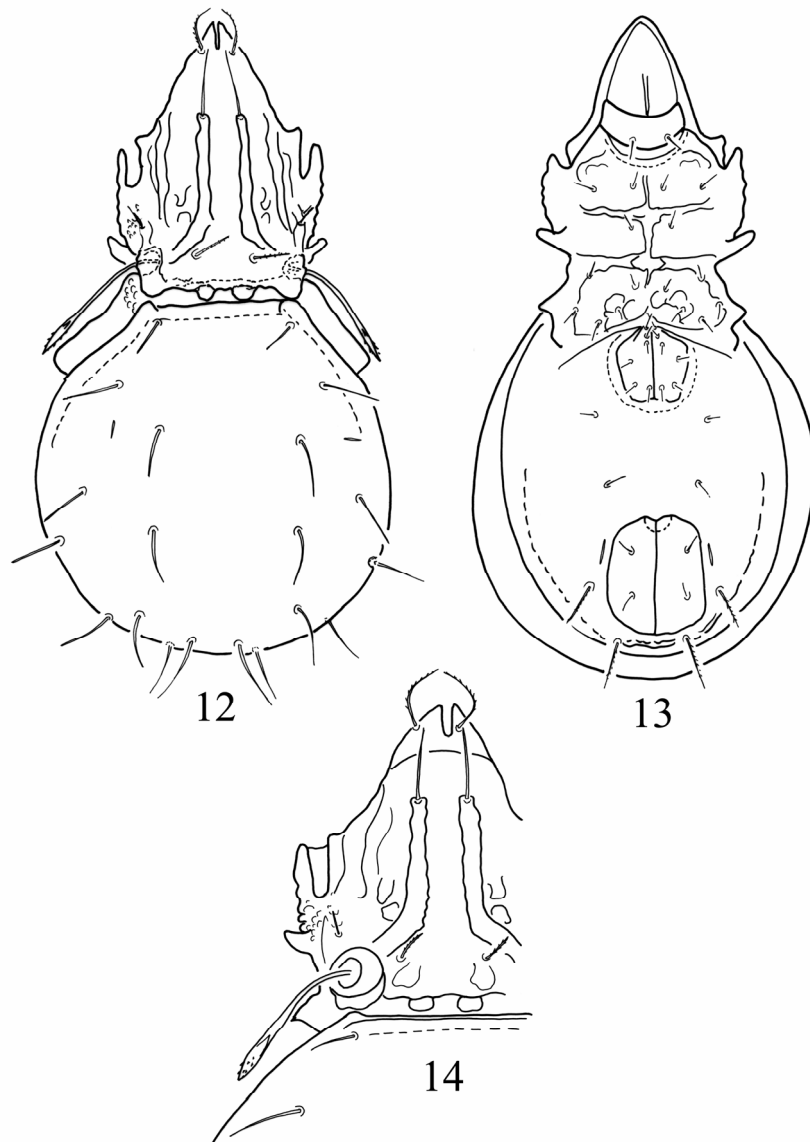
This sylvicolous species is well distributed in the Holarctic Region, but nowhere common. On the basis of the keys and figures published by WEIGMANN (2006) easily identifiable.

The studied specimens from Finland and from Romania unambiguously belong also this species. The most important characters are:

Prodorsal costulae narrow, they run over a long part parallelly, near to each other (Fig. 14). Lateral part of prodorsum with a pair of strong tubercles, placed in opposite position. A pair of basal tubercles is also present, connected by a fine, narrow lath. Rostral setae directed strongly inwards, well ciliate (Fig. 12). Lamellar setae straight, reaching to the insertions of the preceding ones. Interlamellar setae bacilliform.

Sensillus very long, with lanceolate head, bearing 3-5 short cilia. Notogastral setae comparatively strong, setae c_2 shorter and thinner than the others. Apodemes and epimeral borders weakly developed, sternal ones hardly observable (Fig. 13). Aggenital and setae ad_3 much shorter than setae ad_1 and ad_2 .

Measurements. length of body: 356-363 μm , width of body: 207-211 μm .

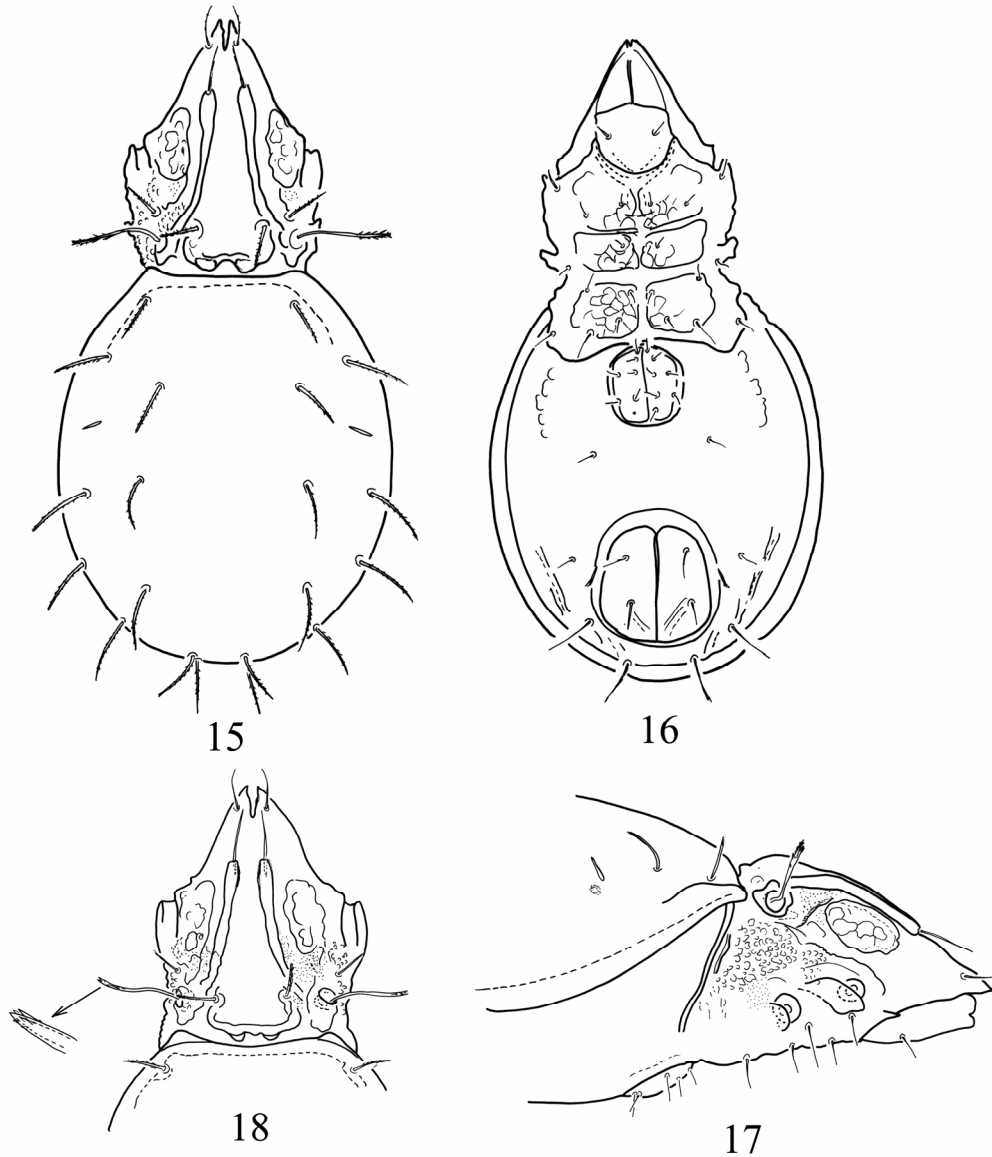


Figures 12-14. *Conchogneta traegardhi* (FORSSLUND, 1947). 12: body in dorsal view, 13: body in ventral view, 14: prodorsum in dorsal view

***Conchogneta vasiliorum* sp.n.**

Material examined. Holotype (HNHM 1724-HO-2007): Romania, Bihor county, Padiş Mts, Staþiunea Boga, Bazarul Someşului, 900 m, beech litter, 17. 07. 2006., leg. D. MURÁNYI (E-2045. Paratypes: (HNHM 1724-PO-2007) 1 ex., (MHNG) 1 ex., locality same as that of the Holotype.

Diagnosis. Rostral apex with deep incision. Lamellae run partly parallel, near to each other, peculiarly dilated anteriorly. Sensillus long, bacilliform, distally covered by short spines, sometime bifurcate. Interlamellar setae bacilliform, roughened, exobothridial ones shorter, setiform. Ten pairs stout, roughened, mostly bacilliform, notogastral setae. Epimeral surface ornamented by polygonal pattern, epimeres and borders – excepting sternal ones – well developed.



Figures 15-18. *Conchogneta vasiliorum* sp. n. 15: body in dorsal view, 16: body in ventral view, 17: prodorsum in lateral view, 18: prodorsum in dorsal view

Ventral plate with some fine rugae in posteromarginal position and on the anal plates. All legs monodactylous.

Measurements. Length of body: 500-527 μm , width of body: 263-271 μm .

Prodorsum. Rostral incisure narrowing basally, V-shaped. Rostral teeth sharply pointed. Distal part of lamellae running partly parallel, their distal end characteristically dilated (Fig. 15). There is a pair of lateral field, ornamented by polygonal pattern (Fig. 18). The lateral tubercles absent. A well developed transcostula present in the interbothridial region, bearing one pair of roundish tubercles. Rostral and lamellar setae setiform, thin, rostral ones only slightly bent inwards. Interlamellar setae bacilliform, blunt at tip. Bothridium with guttiform protuberances posteriorly. Sensillus thin, bacilliform, hardly dilated distally, distal part covered by spines, sometimes bi-, or trifurcate, slightly roughened.

Notogaster. Humeral part of notogaster with a pair of triangular protuberances. Ten pairs of bacilliform notogastral setae present, without larger variation in length, only setae c_2 shorter, than the others.

Lateral part of podosoma. Along the lamellae a well framed oval field present, ornamented by polygonal pattern (Fig. 17). Exobothridial region covered by characteristic, comparatively large pustules. Anterior part of this field granulate.

Ventral regions (Fig. 16): Apodemes and epimeral borders well developed, composing a thick network. Epimeral surface distinctly polygonate. All epimeral setae short, simple, setae $1c$ originating laterally, near to pedotecta 1. In the anterolateral part of the ventral plate some sigilla arranged in two longitudinal rows. In this posteromarginal part some weak rugae present, one pair on the surface of anal plates. Genitoanal setal formula: 6 – 1 – 2 – 3. All setae – excepting adanal ones – in posteromarginal position (ad_1 and ad_2) much shorter than the others.

Legs. All legs monodactylous. Anterodorsal process of leg I conspicuously long, also very long is the solenidium ϕ_1 of leg I.

Remarks. In the connection of this new species I have studied some *Conchogneta* GRANDJEAN,

1963 species from different localities of Europe, e.g. *Conchogneta traegardhi* (FORSSLUND, 1947) from Finland and Hungary and *Conchogneta dalecarlica* (FORSSLUND, 1947) from Hungary and *C. willmanni* (DYRDOWSKA, 1929) from Slovakia. The new species stands nearest to *C. traegardhi*, however the new species is distinguished from it by the measurements of body (the maximum length 440 μ in *traegardhi*), by the form of the sensillus and by the absence of the lateral tubercles in the prodorsum.

Etymology. The new species is dedicated to Drs. NICOLE VASILIU and MIHAI VASILIU, the renowned oribatidologists in Romania.

Conchogneta willmanni (DYRDOWSKA, 1929)

I was able study Hungarian and Transylvanian specimens. In my opinion it is not synonymous with *C. dalecarlica* (FORSSLUND, 1947), but the two species stand very near to each other. They are distinguishable by the length and form of the sensillus (much longer in *willmanni*, Fig. 19) and by the distal end of sensillar head (clearly bifurcate in *willmanni* Fig. 19, distinctly pilose, nearly pectinate in *dalecarlica*, Fig. 20).

Identification key to the *Conchogneta* species

1 (4) Prodorsal costulae run far from each other, converging anteriorly.

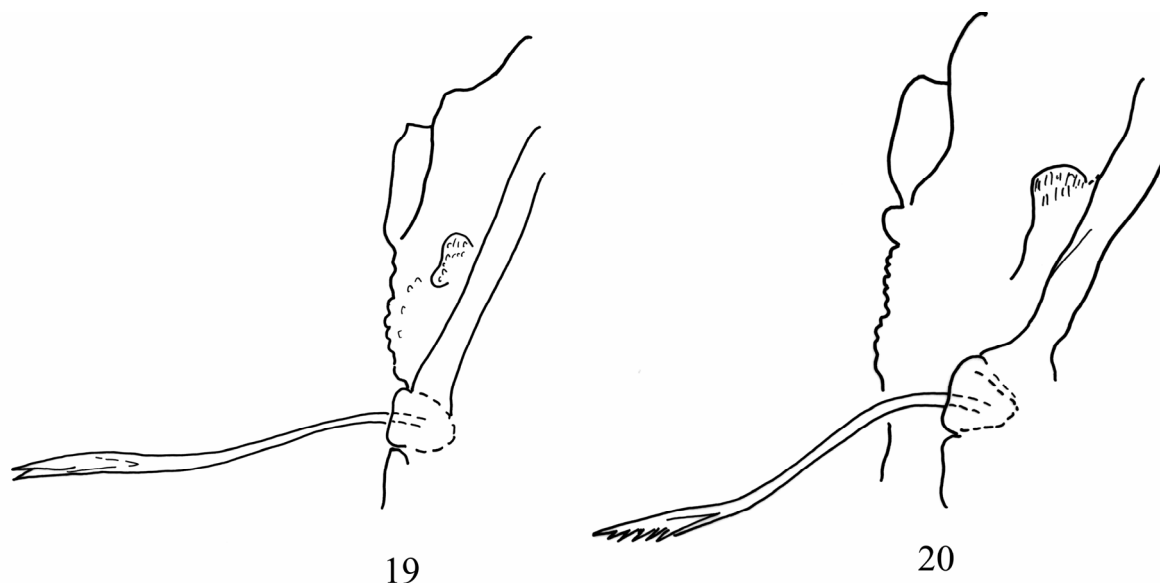
2 (3) Sensillus very long, its head bifurcate
willmanni (DYRDOWSKA, 1929)

3 (2) Sensillus shorter, its head pectinate or well pilose
dalecarlica (FORSSLUND, 1947)

4 (1) Prodorsal costulae run near to each other, over a long part parallelly.

5 (6) Prodorsal costulae narrow, without dilated distal part. A pair of tubercles on lateral part of prodorsum, along the costulae
traegardhi (FORSSLUND, 1947)

6 (5) Prodorsal costulae wide, with dilated distal part. A pair of polygonate field on lateral part of prodorsum, along the costulae
vasiliorum sp. n.



Figures 19-20. 19: *Conchogneta willmanni* (DYRDOWSKA, 1929): sensillus, 20: *Conchogneta dalearlica* (FORSSLUND, 1947): sensillus

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