

***Tricheremaeus travei* MIKO, 1993 (Acari: Oribatida: Eremaeidae), a remarkable find in South Tyrol (Italy)**

Heinrich Schatz

The oribatid genus *Tricheremaeus* was erected by BERLESE, 1908 with the type species *Notaspis serrata* MICHAEL, 1885. The genus is characterized by a robust eremaeoid body, by neotrichy on notogaster, and by very long and spiculate notogastral setae in varying numbers (15-21 pairs, depending on species). Neotrichy occurs also in the anal and adanal region (MIKO & WEIGMANN 2007). Altogether 6 species are described and recorded from West, Central and South to Southeast Europe. All species are rare. The assignment of older records is questionable. In more recent studies the species were discussed in detail by various authors (GRANDJEAN 1963, BERNINI 1970, MIKO 1993, PÉREZ-ÍÑIGO 1997, WEIGMANN 2006, MIKO & WEIGMANN 2007). During the collections of the "Biodiversity day 2008" (FISCHER & SCHATZ 2009) three specimens of the genus *Tricheremaeus* were found.

Material examined

Central Alps, Sesvenna group/Alpi della Val Monastero: district of Graun/Curon Venosta, west of Passo di Resia (Italy, South Tyrol); subalpine forest with larch and spruce on calcareous rocks; needle litter at the foot of an old larch (*Larix decidua*), dry to moist (Heinrich and Irene Schatz, 28.vi.2009, 46°48,90'N, 10°29,35'E, 1830 m a.s.l., sample #21435, sifted: 3 adult specimens).

Morphological features

Length: females (n=2): 590 μm , male (n=1): 560 μm . Length of sensillus 35-40 μm , with spiculae, length of interlamellar setae \sim 120 μm . Notogaster with small foveae, diameter 3-4 μm ; diameter of notogastral setal insertions 5-6 μm . 17 pairs of notogastral setae present, c_3 absent (c_1 , c_2 , groups of 2-3-8 setae, p_1 , p_2), length 150-200 μm , with spiculae. Epimeral setal formula 3-1-3-3, small, acuminate. Setae on plate 2 smooth, length \sim 10 μm , others with spiculae, length of setae 1a-c 15-20 μm , setae 3a-c, 4a-c 20-25 μm . Ventral plate with small foveae as notogastral plate, Genito-anal setal formula 6-1-5-5 in females, 6-1-5/6 (anal)-4/5 (adanal) setae in male; genital setae \sim 15 μm , aggenital 20 μm , anal \sim 20 μm , adanal setae anterior 55 μm , posterior 90 μm long, all ciliate to densely covered with bristles. Legs tridactylous.

Remarks

The known *Tricheremaeus* species differ mainly in body size, in size of notogastral concavities, in number of notogastral setae as well as in the genito-anal formula. The examined specimens correspond to the original description of *Tricheremaeus travei* MIKO, 1993 in most respects. A minor difference is the slightly smaller body size of both sexes (type material from Slovakia: females 620-680 μm , males 565-610 μm , MIKO 1993). The

neotrichy of the notogastral setae as well as the setae of the ano-adanal region may show a small, frequently asymmetrical variability (WEIGMANN 2006: 221). An asymmetry was also observed in the male of the present material.

In the course of this study older *Tricheremaeus* material collected by the author was checked and part of it corrected. "*Tricheremaeus serratus* (MICHAEL, 1885)", found in the Dorfertal, Eastern Tyrol (SCHATZ 1990) is *T. abnobensis*, "*Tricheremaeus pilosus* (MICHAEL, 1888)", recorded in the Virgental, Eastern Tyrol (SCHATZ 1995), is *Phauloppia pilosa* (MICHAEL, 1888) [nec C.L. KOCH, 1841; species assignment clarified according to WEIGMANN 2006]. *Tricheremaeus abnobensis* was found in the Dolomites (Schlern/ Sciliar massif, SCHATZ 2008). The morphological differences between *T. abnobensis* and *T. travei* are minimal, mainly expressed in absence (*T. travei*) or presence (*T. abnobensis*) of setae c_3 . The concavities (foveae) on notogaster and on ventral plate are almost identical.

Distribution of the known *Tricheremaeus* species

All species are rare, with records from West, Central and South Europe. *Tricheremaeus nemossenensis* was also found in the Western Ukraine (KARPPINEN et al. 1992). Additional records of the genus are known from Poland and Corsica (MIKO 1993).

<i>Tricheremaeus abnobensis</i> MIKO & WEIGMANN, 2006	Switzerland (Andermatt), Germany (Schwarzwald), Austria (East Tyrol), Italy (South Tyrol – Dolomites)
<i>Tricheremaeus conspicuus</i> BERLESE, 1916	Southern Italy (Calabria), Bulgaria (Rila Range), Eastern Austria (Burgenland) ¹ , Western Hungary (Közseg) ²
<i>Tricheremaeus grandjeani</i> BERNINI, 1970	Italy (Tuscany)
<i>Tricheremaeus nemossensis</i> GRANDJEAN, 1963	Southern France (Auvergne, Pyrenees), Slovenia (Kamnik Alps), Spain (Sierra de Guadarrama), Ukraine (Eastern Carpathian mountains)
<i>Tricheremaeus serratus</i> (MICHAEL, 1885)	Britain, Northern Italy (Trentino) ³ , South Italy (Tuscan Archipelago) ⁴ , Switzerland (Jura) ³ , Hungary (Bükk NP) ³ , Spain (Sierra de Guadarrama, doubtful record) ³
<i>Tricheremaeus travei</i> MIKO, 1993	Slovakia, Italy (South Tyrol – Central Alps)

¹ FRANZ 1954, possibly *T. travei* according to MIKO (1993).

² BALOGH 1943, possibly *T. travei* according to MIKO (1993).

³ All records of *T. serratus* outside Britain are questionable according to MIKO (1993) and WEIGMANN (2006).

⁴ BERNINI (1979) allocates these specimens to the "*serratus*" group.

Tricheremaeus travei MIKO, 1993 was previously only known from two sites in Slovakia (East Slovakia, Slanské vrchy mountains, State nature reservation "Zamutovské skaly", from moss and lichen growths on ground and on rock slopes; North Slovakia, Pieniny National Park, Kláštorhá hora, from wet moss growths on rock on the north slope, MIKO 1993).

The present find is the first record of this species for the Alps, South Tyrol and Italy.

Ecology

The ecology of the *Tricheremaeus* species is unclear and seems to be heterogeneous.

Tricheremaeus serratus lives in lichens (WEIGMANN (2006), SCHWEIZER (1922) found *T. "serratus"* (the assignment to this species is questionable according to WEIGMANN 2006) in lichen and moss on trees, MAHUNKA (2004) in moss.

Tricheremaeus conspicuus was discovered in Southern Italy at lower elevations (boschi della Sila, Cosenza, Calabria) (BERNINI 1970), in Bulgaria in dry moss in cracks of a large cliff above 2000 m a.s.l. in the Rila Range (CSISZÁR & JELEVA 1962).

Tricheremaeus grandjeani was found in moss at elevations between 850 m and 1500 m a.s.l. in the Apuan Alps (Apennine Mountains) (BERNINI 1970).

Tricheremaeus abnobensis is known from high mountainous areas of the Alps and Schwarzwald, on bark of trees (MIKO & WEIGMANN 2007), in high alpine moss in the Central Alps (SCHATZ 1990, sub *T. serratus*), and in grass litter and cushion plants in the Dolomites (SCHATZ 2008).

Tricheremaeus travei was previously found in moss and lichen on ground and on rocks (MIKO 1993). In South Tyrol we captured this species at the foot of a larch, in twig and needle litter.

References

- BALOGH J., 1943: Magyarország Páncélosatkái (Conspectus Oribateorum Hungariae). Budapest, 202 pp.
- BERLESE A., 1908: Elenco di generi e specie nuovi di Acari. Redia, 5: 1-15.
- BERNINI F., 1970: Notulae Oribatologicae II. Gli Oribatei (Acarida) delle Alpi Apuane (1a serie). Lavori della Società Italiana di Biogeografia, Nuova Serie, 1: 389-429.
- BERNINI F., 1979: Biogeographic and faunistic data on the Oribatids of the Tuscan Archipelago. In: RODRIGUEZ J.G. (ed.): Recent Advances in Acarology. Academic Press, vol. 2: 559-565.
- CSISZÁR J. & JELEVA M., 1962: Oribatid mites (Acari) from Bulgarian soils. Acta Zoologica Academiae Scientiarum Hungaricae, 8: 273-301.
- FISCHER B.M. & SCHATZ H., 2009: Hornmilben (Acari, Oribatida). In: WILHALM T. (ed.): GEO-Tag der Artenvielfalt 2008 am Reschenpass (Gemeinde Graun im Vinschgau, Südtirol, Italien). Gredleriana, 9: 171-186.
- FRANZ H., 1954: Die Nordostalpen im Spiegel ihrer Landtierwelt. Universitätsverlag Wagner, Innsbruck, 664 pp.
- GRANDJEAN F., 1963: La néotrichie du genre *Tricheremaeus* d'après *T. nemossensis* n.sp. (Oribate). Acarologia, 5: 407-437.
- KARPPINEN E., MELAMUD V.V., MIKO L. & KRIVOLUTSKY D.A., 1992: Further information on the oribatid fauna (Acarina, Oribatei) of the northern Palearctic region: Ukraina and Czechoslovakia. Entomologica Fennica, 3: 41-56.

- MIKO L., 1993: *Trichereмаeus travei* n.sp., a new oribatid mite from East Slovakia. *Acarologia*, 34: 177-186.
- MIKO L. & WEIGMANN G., 2007: *Trichereмаeus abnobensis* MIKO & WEIGMANN 2006, a recently described oribatid mite from Central Europe (Arachnida, Acarina, Oribatida, Eremaeidae). *Senckenbergiana biologica*, 87: 131-134.
- PÉREZ-ÍÑIGO C., 1997: Acari. Oribatei. Gymnonota I. In: RAMOS A. et al. (eds.): *Fauna Iberica*. Museo de Ciencias Naturales, Madrid, vol. 9, 373 pp.
- SCHATZ H., 1990: Oribatida (Acari) aus dem Kalser Dorfertal (Osttirol, Hohe Tauern, Österreich). Zweiter Teil. *Berichte des naturwissenschaftlich-medizinischen Vereins, Innsbruck*, 77: 91-102.
- SCHATZ H., 1995: Hornmilben in Trockenrasenböden des Virgentales (Osttirol, Österreich) 2. Teil: Faunistik (Acari, Oribatida). *Berichte des naturwissenschaftlich-medizinischen Vereins, Innsbruck*, 82: 121-144.
- SCHATZ H., 2008: Hornmilben (Acari: Oribatida) im Naturpark Schlern – Rosengarten (Südtirol, Italien). *Gredleriana*, 8: 219-254.
- SCHWEIZER J., 1922: Beiträge zur Kenntnis der terrestrischen Milbenfauna der Schweiz. *Verhandlungen der Naturforschenden Gesellschaft in Basel*, 23: 23-112.
- WEIGMANN G., 2006: Hornmilben (Oribatida). *Die Tierwelt Deutschlands*, 76. Teil. Goecke & Evers, Keltern, 520 pp.

Author's address:

Dr. Heinrich Schatz
Institut für Ökologie
Leopold-Franzens Universität
Technikerstr. 25
A-6020 Innsbruck, Austria
heinrich.schatz@uibk.ac.at