

A new species and a new record of the genus *Hypogastrura* BOURLET, 1839 (Collembola, Hypogastruridae) from Poland

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Received: 15 Feb. 2006

Accepted: 19 April 2006

SKARŻYŃSKI D. 2006. A new species and a new record of the genus *Hypogastrura* BOURLET, 1839 (Collembola, Hypogastruridae) from Poland. *Acta zoologica cracoviensia*, **49B**(1-2): 83-87.

Abstract. *Hypogastrura szeptyckii* sp. n. is described from Poland (Krakowsko-Wieluńska Upland and Pieniny Mountains). *Hypogastrura franconiana* (STACH, 1949) is recorded from Poland (Sudetes) for the first time.

Key words: Collembola, taxonomy, *Hypogastrura szeptyckii* sp. n., *Hypogastrura franconiana* (STACH), Poland.

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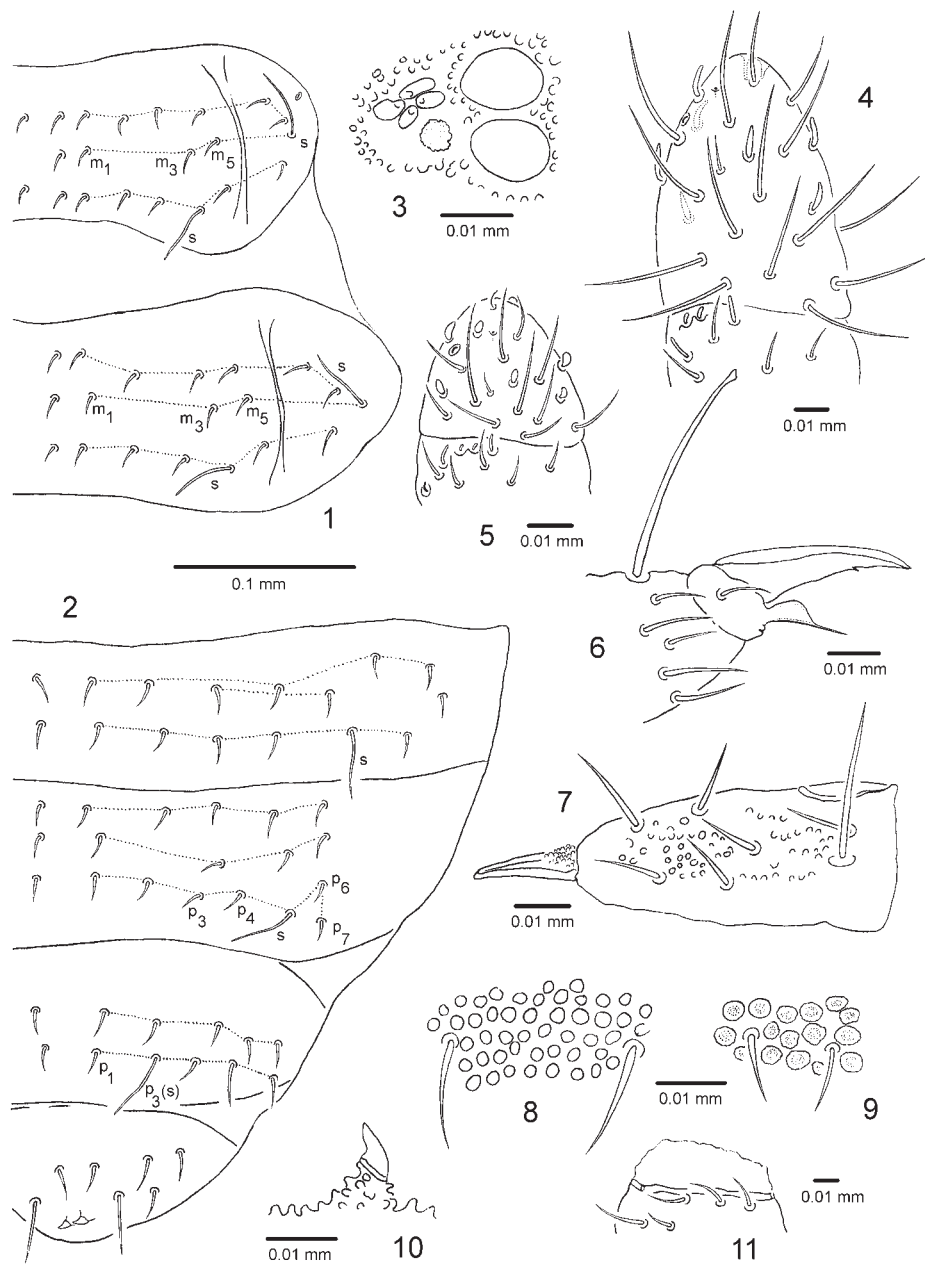
Until quite lately the taxonomic status of *Hypogastrura crassaegranulata* (STACH, 1949) was uncertain. Some authors regarded this species as a polytypic one (STACH 1949, CASSAGNAU 1959, GISIN 1960a, b, NOSEK 1962, PALISSA 1964, THIBAUD et al. 2004) while others as a complex of species of unclear taxonomic position (BABENKO et al. 1994). A recent taxonomic revision (SKARŻYŃSKI 2006) has split this species into three taxa: *H. crassaegranulata* (STACH, 1949) [(=*H. c. crassaegranulata*, =*H. c. dobsinensis* (STACH, 1949)], *H. franconiana* (STACH, 1949) [(=*H. c. franconiana*, =*H. c. estaranhensis* CASSAGNAU, 1959, =*H. c. burgundiana* GISIN, 1960)] and *H. carpatica* (NOSEK, 1962) [(=*H. c. carpatica* NOSEK, 1962)]. Consequently the identity of the species recorded before 2006 as *H. crassaegranulata* has become unclear. A detailed review of the Polish material of “*H. crassaegranulata*” made it possible to ascertain that the populations from the Ojców National Park (SZEPTYCKI 1967) and Pieniny Mountains (WEINER 1981) represented a new species and the population from the Sudetes (SKARŻYŃSKI 2003) belonged to *H. franconiana* (new record). A description of this new species and a note on the Polish population of *H. franconiana* are given below.

A c k n o w l e d g e m e n t s. I wish to thank Wanda M. WEINER, Andrzej SZEPTYCKI and R. J. POMORSKI for the loan of the material. The study was sponsored by the Wrocław University (grants 2020/W/IZ/2004-2005).

Hypogastrura szeptyckii sp. n.

(Figs 1-11)

Hypogastrura crassaegranulata: SZEPTYCKI 1967: 227, WEINER 1981: 425



Figs 1-11. *Hypogastrura szeptyckii* sp. n. 1 – chaetotaxy of thoracic terga II-III; 2 – chaetotaxy of abdominal terga III-VI; 3 – postantennal organ, accessory boss and adjacent ocelli; 4 – chaetotaxy of antennal segments III-IV (adult male); 5 – chaetotaxy of antennal segments III-IV (III instar); 6 – claw III; 7 – dens and mucro; 8 – granules between setae p_1 on abdominal tergum V (III instar); 9 – granules between setae p_1 on abdominal tergum V (adult male); 10 – anal spine; 11 – chaetotaxy of ventral tubus.

D i a g n o s i s. Habitus typical of the genus *Hypogastrura*. Cuticular granulation fine. Antennal segment IV with 7 (6) thick sensilla. 8 + 8 eyes present. Postantennal organ small, accessory boss present. Labrum with apical papillae. Head of maxilla of the *tullbergii* type. Thoracic tergum I with 3 + 3 setae, II without setae m_2 . Empodial basal lamella broad. 1, 1, 1 clavate tibiotarsal hairs. Ventral tubus with 5 + 5 setae. Retinaculum quadridentate. Dens with 7 setae and fine granules. Mucro narrow with low lamellae.

D e s c r i p t i o n. Body length 1-1.6 mm. Antennae, dorsal part of the body and legs from grey to black, ventral part of the body usually slightly paler. Tegumental granulation fine in adults (6-10, usually 8 granules between setae p_1 on abdominal tergum V, Fig. 8) and coarse in juveniles and subadults (3-5 granules between setae p_1 on abdominal tergum V, Fig. 9).

Chaetotaxy of thoracic terga II-III and abdominal terga III-VI as in Figs 1-2. Chaetotaxy of head typical of the genus. Setae short and smooth. Body setae s fine and smooth, 2-3 times longer than ordinary setae. Thoracic tergum I with 3 + 3 setae. Thoracic terga II-III with 3 + 3 ordinary m setae (m_2 , m_4 , m_6 , m_6 absent). Microsensillum on thoracic tergum II present. Setae p_3 and p_7 on abdominal tergum IV present. Setae p_2 on abdominal tergum V absent. Subcoxae I, II, III with 1, 3-4, 3-4 setae respectively.

Antennal segment IV with simple apical vesicle, subapical organite, microsensillum, 7 (rarely 6) thickened and curved sensilla (moderately long in adults and short in juveniles and subadults, Figs 4-5). Antennal III-organ with two long (lateral) and two short (internal) curved sensilla (Fig. 4). Microsensillum on antennal segment III present. Antennal segment I with 8 setae.

Ocelli 8 + 8. Postantennal organ consisting of 4 lobes, clearly smaller than neighbouring ocelli (Fig. 3). Accessory boss present (Fig. 3). Labrum with 5, 5, 4 setae and 4 prelabrals. Head of maxilla of the *tullbergii* type (FJELLBERG 1984). Maxillary outer lobe with 2 sublobal hairs. Labium of the *tullbergii* type (FJELLBERG 1999).

Tibiotarsi I, II, III with 19, 19, 18 setae respectively. 1, 1, 1 A_1 clavate setae present (Fig. 6). Claws with inner tooth. Empodial appendage with broad basal lamella and apical filament reaching middle of inner unguis or slightly beyond (Fig. 6).

Ventral tubus with 5 + 5 setae (Fig. 11). Retinaculum with 4 + 4 teeth.

Furca well developed. Dens with fine granules and 7 setae. Mucro narrow with low lamellae (Fig. 7). Ratio: dens/mucro = 2.5-3.5.

Anal spines short, slightly hooked, about as high as basal papillae (Figs 2, 10).

Type material. Holotype (female) and 42 paratypes (30 females, 12 males) deposited in the Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków.

Type locality. Poland, Krakowsko-Wieluńska Upland, Ojców National Park, at the foot of the Chełmowa Góra, wet calcareous rocks near villa "Pod Ber³em" (350 m a. s. l.), Ju 64/4, 12. IV. 1964, leg. A. SZEPTYCKI.

Other material. Poland, Krakowsko-Wieluńska Upland, Ojców National Park, numerous specimens collected at altitudes 350-472 m a. s. l., shaded moist calcareous rocks on N slopes of Smardzewska Góra (13. V. 1963), Złota Góra (15. III. 1965), near Krakowska Gate (24. V. 1963), Ciemna cave (24. IV. 1964), Niedźwiedzia cave (1. V. 1964), umbrophilous saxicolous associations (*Ctenidiotalia* and *Festucetum pallentis neckeretosum*) on N slopes of Chełmowa Góra (15. III. 1965), Zamkowa Góra (juveniles) (20. VII. 1964), Jamki Gorge (juveniles) (28. VII. 1964), Korytań Gorge (15. II. 1965) and Kaplica (juveniles) (20. VII. 1964), all leg. A. SZEPTYCKI; Poland, Pieniny Mountains, 2 juv., E slope of Trzy Korony, 700 m a. s. l., saxicolous mountain grassland on limestone rocks (*Dendranthemo-Seslerietum*), 1. XII. 1975, leg. W. M. WEINER; 1 subadult male, 1 subadult female, 1 juv., E slope of Gorczyński Gorge, 590 m a. s. l., saxicolous xerothermic grassland on limestone rocks (*Festucetum pallentis potentilletosum*), 13. XI. 1976, leg. W. M. WEINER; numerous adult specimens, neighborhood of village Jaworki, 600-700 m a. s. l., mosses on shaded moist calcareous rocks, 8. IV. 2005, leg. D. SKARŻYŃSKI; numerous juveniles, same locality as above, 6. VIII. 2005, leg. D. SKARŻYŃSKI.

Etymology. Dedicated to Andrzej SZEPTYCKI, an excellent specialist in Collembola and Proctura, who collected the type series.

Discussion. The following features: fine cuticular granulation, antennal segment IV with clearly differentiated sensilla, labrum with apical papillae, broad basal empodial lamella, 1, 1, 1 clavate tibiotarsal hairs, ventral tubus with more than 4 + 4 setae, quadridentate retinaculum and dens with fine granules place the new species in the *sahlbergii* group (see BABENKO et al. 1994, THIBAUD et al. 2004). From among members of this group *Hypogastrura tatrca* (STACH, 1949) seems to be most similar to *H. szeptyckii* sp. n. Nevertheless, these species can be easily separated by the following characters: shape of apical vesicle (*H. szeptyckii* sp. n.: simple, *H. tatrca*: trilobed), presence/absence of setae m_2 on thoracic tergum II and p_2 on abdominal tergum V (*H. szeptyckii* sp. n.: absent, *H. tatrca*: present), number of setae on ventral tubus (*H. szeptyckii* sp. n.: 5 + 5, *H. tatrca*: 7 + 7) and shape of mucro (*H. szeptyckii* sp. n.: narrow, *H. tatrca*: broad). The new species is also close to the representative of the *crassaegranulata* group: *H. crassaegranulata*. They differ in the character of tegumentary granulation (*H. szeptyckii* sp. n.: fine, *H. crassaegranulata*: coarse), number of thick sensilla on antennal segment IV (*H. szeptyckii* sp. n.: 7 rarely 6, *H. crassaegranulata*: 6-9), presence/absence of accessory boss near postantennal organ (*H. szeptyckii* sp. n.: present, *H. crassaegranulata*: absent), number of setae on thoracic tergum I (*H. szeptyckii* sp. n.: 3 + 3, *H. crassaegranulata*: 2 + 2), presence/absence of setae p_3 and p_7 on abdominal tergum IV (*H. szeptyckii* sp. n.: present, *H. crassaegranulata*: absent) and number of setae on ventral tubus (*H. szeptyckii* sp. n.: 5 + 5, *H. crassaegranulata*: 5-7 + 5-7).

Hypogastrura franconiana (STACH, 1949)

Hypogastrura crassaegranulata: SKARŻYŃSKI 2003: 31

Material examined. Poland, Sudetes, Góry Kaczawskie, 2 subadult females and 3 subadult males, top of the Miłek Mountain near Wojcieszów, 596 m a. s. l., mosses on calcareous rocks, 10. X. 1985, leg. R. J. POMORSKI; 2 females and 1 male, same data as above, 29. II. 2004, leg. D. SKARŻYŃSKI; 5 females and 3 males, N slopes of the Okopowa Mountain near village Podgórci, 500 m a. s. l., moist mosses on shaded calcareous rocks, 25. III. 2005, leg. D. SKARŻYŃSKI.

Note. This species is here recorded from Poland for the first time. Sudetic population generally fits the description of *H. franconiana* sensu SKARŻYŃSKI, 2006, but it differs a little in the number of setae on ventral tubus (5-7 versus 5-6). This low level of morphological differentiation is considered to be due to populational variability. Habitat preferences of the recorded population are also similar to those described by SKARŻYŃSKI (2006).

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