

A new species of *Kalaphorura* ABSOLON, 1901 (Collembola, Onychiuridae, Onychiurinae) from Luxembourg

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Received: 7 June 2005

Accepted: 15 July 2005

WEINER W. M., STOMP N. 2005. A new species of *Kalaphorura* ABSOLON, 1901 (Collembola, Onychiuridae, Onychiurinae) from Luxembourg. *Acta zoologica cracoviensia*, **48B**(1-2): 95-98.

Abstract. A new species of *Kalaphorura* from Luxembourg is described; it is closest to *Kalaphorura paradoxa* (SCHÄFFER, 1900).

Key words. Collembola, *Kalaphorura*, new species, new generic diagnosis, Luxembourg.

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In this paper we present a description of a new *Kalaphorura* species. Our study is based on material collected during the investigations on Collembola Poduromorpha in Luxembourg.

POMORSKI (1998) and WEINER (1996) gave complete diagnoses for the genus *Kalaphorura* ABSOLON, 1901, but the specimens found in Luxembourg do not entirely fit in: they possess 1+1 pseudocelli on the hind margin of head capsule and only four guard setae in sensory organ of antennal segment III. For this reason we present here a modified diagnosis.

***Kalaphorura* ABSOLON, 1901**

D i a g n o s i s. Hind margin of dorsal part of head without or with 1+1 pseudocelli. Thoracic tergum I without pseudocelli, thoracic terga II-III and abdominal terga I-III usually with 1+1 dorsomedial pseudocelli. Pseudocelli without distinct ridges. Dorsal side of body with lateral parapseudocelli. Granulation of dorsal side of the body very strong. Most dorsal setae blunt, retused or knobbed, sensory setae indistinct. Sensory organ of antennal segment III with simple papillae and 5+5 or 4+4 guard setae. Vesicles in postantennal organ simple, slightly enlarged at bases, perpendicular to the long axis of the organ. Tibiotarsal distal verticil of setae with 11 setae. Furca present, dens reduced to two knobs with 3+3 or 4+4 microchaetae, mucro absent, tenaculum present. Abdominal segment VI elongated, its tergite with indistinct rows of setae, with two medial setae. Anal spines on distinct papillae present.

T y p e s p e c i e s. *Aphorura paradoxa* SCHÄFFER, 1900.

A c k n o w l e d g e m e n t s. We are most grateful to Igor J. KAPRUS' for providing us the material of *Kalaphorura paradoxa* from Ukraine and Maria BIENIEK for her efficient assistance.

***Kalaphorura ludzaki* sp. n.**

(Figs 1- 8)

D i a g n o s i s. Habitus typical of the genus *Kalaphorura* ABSOLON, 1901; abdomen VI elongated with anal spines on distinct papillae, dorsal side of body coarsely granulated with tubercles larger than seta-basis. Pseudocellar formula per half tergum 21/011/10022. Postantennal organ with 19-21 simple vesicles.

D e s c r i p t i o n. Holotype (female) length 1.98 mm, length of paratypes: 1.87-2.35 mm (females), 1.73-2.06 mm (subadult males), 0.88-0.94 mm (juveniles). Habitus typical of the genus *Kalaphorura* Absolon, 1901, distinctly narrowed at the end of abdomen, abdominal segment VI elongated. Colour in alcohol whitish. Body coarsely granulated, specially on the dorsal side (Fig. 1). Usually 5-6 grains around each pseudocellus on the body and 9-10 grains around each pseudocellus on the antennal base.

Antennae of almost the same length as head. Antennal segment I with 11 (12) setae, antennal segment II with 17 (18) setae. Sensory organ of antennal segment III consisting of four guard setae, five papillae, two smooth sensory rods, two equally sized sense clubs slightly morel-like, and small lateroexternal sensillum (Figs 2 and 3). Antennal segment IV with slender, indistinct sensilla, with a small subapical organite and one latero-external microsensillum at the basal part of this segment (Figs 2 and 3).

Postantennal organ with 18-23 simple vesicles, each slightly enlarged at the base, perpendicular to the long axis of the organ vesicles, in elongated groove (Fig. 5). Labrum with 4/342 setae. Labial palp (Fig. 4) with A, a1, B, b1-4C, D, d2-4, E, e1-e4 and H, h1-2 not blunt at top (type 0 after FJELLBERG 1998/1999).

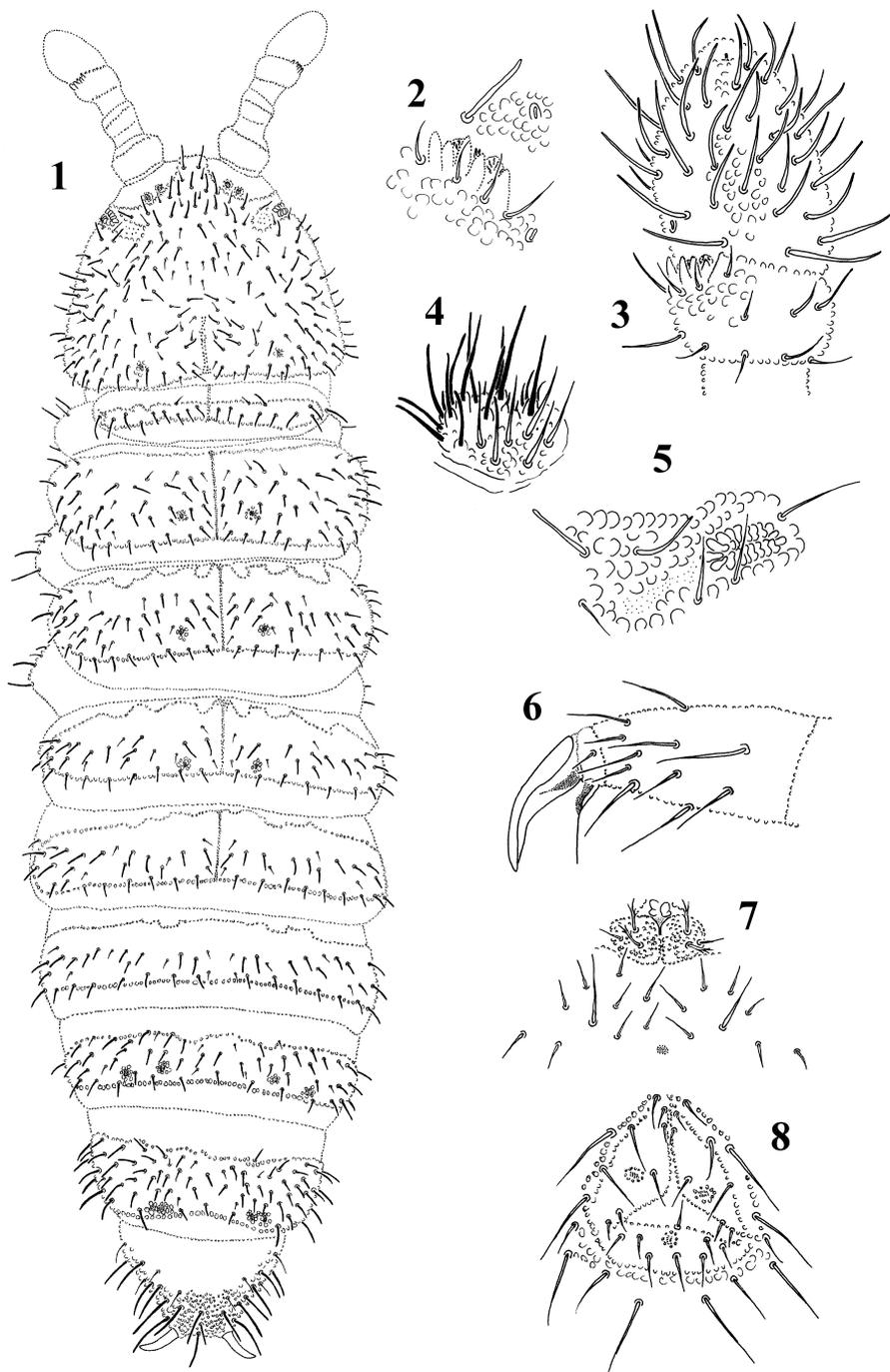
Pseudocellar formula per half tergum 21/011/10022 (Fig. 1), ventral pseudocelli absent. Parapseudocelli very difficult to distinguish: their formula per half segment dorsally 0/011/1111 and ventrally 01/000/111101 (one parapseudocellus on each anal valve). Subcoxae of each leg without pseudocelli, with one parapseudocellus. Each femur with one parapseudocellus.

Dorsal chaetotaxy as in Fig. 1, always with some asymmetry. Seta d0 absent on the head. Body with mesochaetae, some blunt at tip and the others acuminate. Sensory setae s not marked. Thoracic terga II-III with lateral microsensilla (ms). Ventral tube with 8-10+8-10 setae.

Male ventral organ absent. Furca (Fig. 7): dens reduced to two knobs, each with three microchaetae of which two are pinnate, mucro absent, tenaculum present. Three asymmetrical manubrial rows present (after WEINER 1996). Anal spines on distinct papillae present. Each of anal valves (Fig. 8) with five setae in a-row (a0, a1, a2) and three setae in b-row (b0, b1,) and six in c-row (c1, c2 and c3) (after YOSHII 1996).

Tibiotarsi I, II and III with 22, 23 (22), 20 setae respectively in four whorls (after DEHARVENG 1983). Distal verticil of setae (whorls A and T) with 11 setae (7 A-setae and 4 T-setae). B-whorl with 7 setae on tibiotarsi I and II, 6 setae on tibiotarsus III, seta M present. C-whorl with three setae on tibiotarsus I, four (rarely three) on tibiotarsus II and two on tibiotarsus III. Claw without tooth. Empodial appendage with very narrow basal lamella. Apical filament reaching top of claw or even slightly extending beyond it. (Fig. 6).

T y p e m a t e r i a l. Holotype female: L-94-5/1 in Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków, Poland (ISEA), paratypes: females – L-94-5/7,8,11,12, L-94-1/2 subadult males – L-94-5/10,16,19,21,22, L-94-1/23, L-94-2/2,3,4,8, L-94-4/3, juvenile – L-94-5/24 in ISEA, females – L-94-5/2,3,4,5,6,9, L-94-1/1, subadult males – L-94-5/13,15,17,18,20,23, L-94-2/1,5,6,7, L-94-4/1,2, juvenile – L-94-5/14 in Musée national



Figs 1-8 – *Kalaphorura ludzaki* sp. n. 1 – dorsal chaetotaxy; 2 – sensory organ of antennal segment III and microsensillum of antennal segment IV; 3 – antennal segment III-IV dorsally; 4 – labial palp; 5 – postantennal organ; 6 – tibiotarsus III; 7 – furca; 8 – anal valves.

d'histoire naturelle, Luxembourg, paratypes in alcohol: four specimens L-94-2, 26 specimens L-94-5 in ISEA.

T y p e l o c a l i t y. Luxembourg, Baschleiden, in an old garden, soil under rhubarbs (L-94-5), currants (L-94-4), under a box and a 150-year-old fir, under snowdrops (L-94-2), under a box and snowdrops (L-94-1); April 24, 1994, lgt. W. M. WEINER & N. STOMP.

E t y m o l o g y. The new species is cordially dedicated to Antoni LUDZAK, Polish, who after the turmoil of World War II, passed his life in Luxembourg and helped one of us to cultivate the garden, which is the type locality of the new species.

D i s c u s s i o n. The new species is closest to *Kalaphorura paradoxa* SCHÄFFER, 1900 with its chaetotaxy of abdominal tergum VI: seta a0 situated in one row of p setae, and also with the same number of papillae in sensory organ of antennal segment III. The two species differ by the number of guard setae in sensory organ of antennal segment III (four in the new species and five in *K. paradoxa*). The pseudocellar formula is also different: in *K. ludzaki* – 21/011/10022 and in *K. paradoxa* – 20/011/11122 (after POMORSKI 1998, but in the specimens of *K. paradoxa* examined from Ukraine and Luxembourg the pseudocellar formula is 21/011/11122). The new species possesses 18-23 vesicles in the postantennal organ and *K. paradoxa* 24-26.

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