

**A redefinition of *Blissia* with description of a new species from northwestern Canada
(Collembola: Isotomidae)**

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Collembola, *Blissia robusta*, new species, redefinition of genus, Canada

Abstract. The formerly monotypic genus *Blissia* is given a wider definition, in order to include a second new species, *Blissia robusta*, from the Ogilvie Mts, Yukon Territory, northwestern Canada. Some additional characters separating the genera *Blissia* and *Tetracanthella* are described.

INTRODUCTION

The monotypic genus *Blissia* Rusek, 1985 was described from a single species, *B. glabra*, discovered in soil samples from moss/lichen communities on a dolomite outcrop in white spruce taiga near Inuvik, Northwest Territories, Canada. The same year V. Behan Pelletier collected another unknown but apparently related species in alpine communities of the Ogilvie Mts, in the Yukon Territory. This second species shares essential generic features with *Blissia*, but certain unique characters necessitate an adjustment of the generic definition.

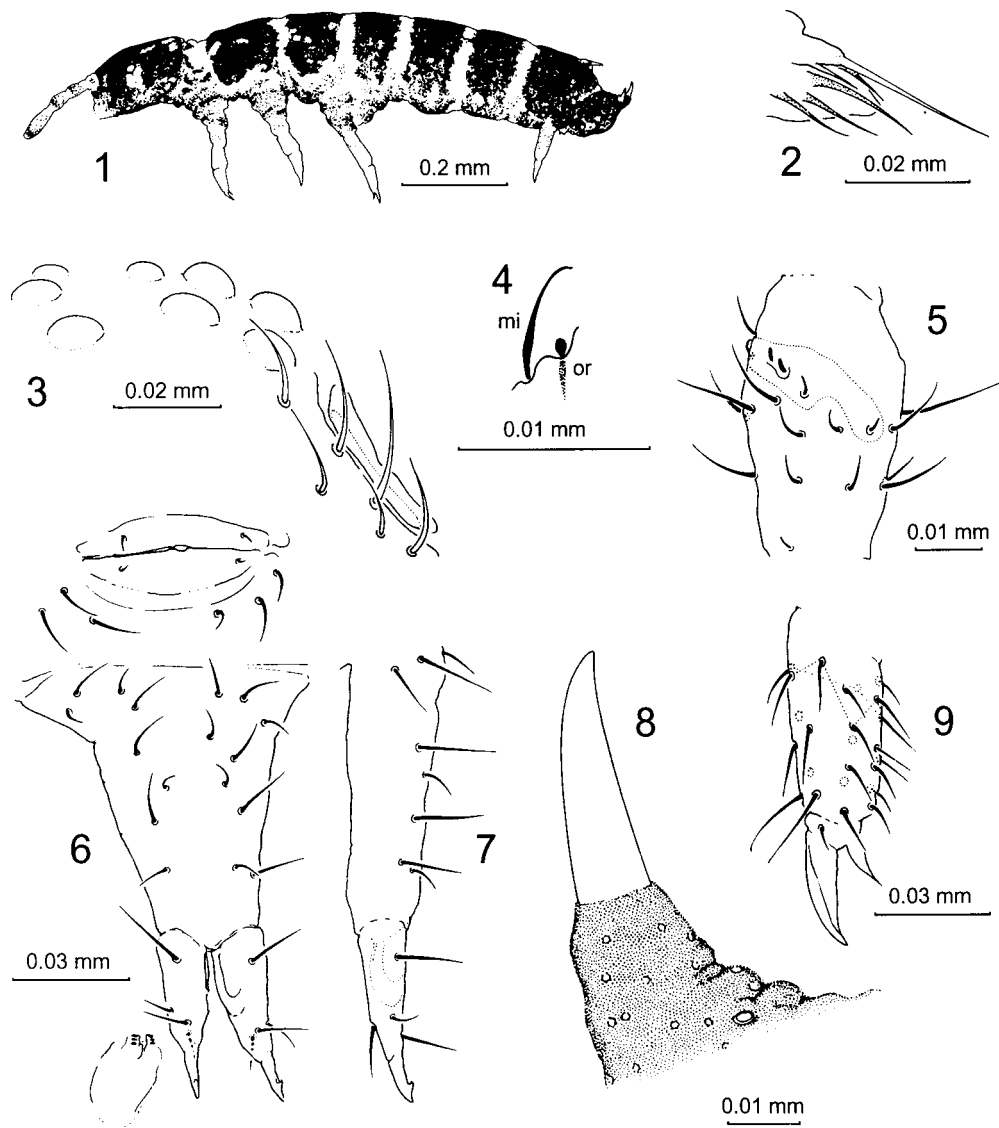
ABBREVIATIONS USED IN THE TEXT: Abd. 1–6 – abdominal segments 1–6; Ant. 1–4 – antennal segments 1–4; Md, Mdl, Ml – dorsal, dorsolateral and lateral macrochaetae; ms – microsensillum; s – sensillum (macrosensillum).

Genus *Blissia* Rusek, 1985

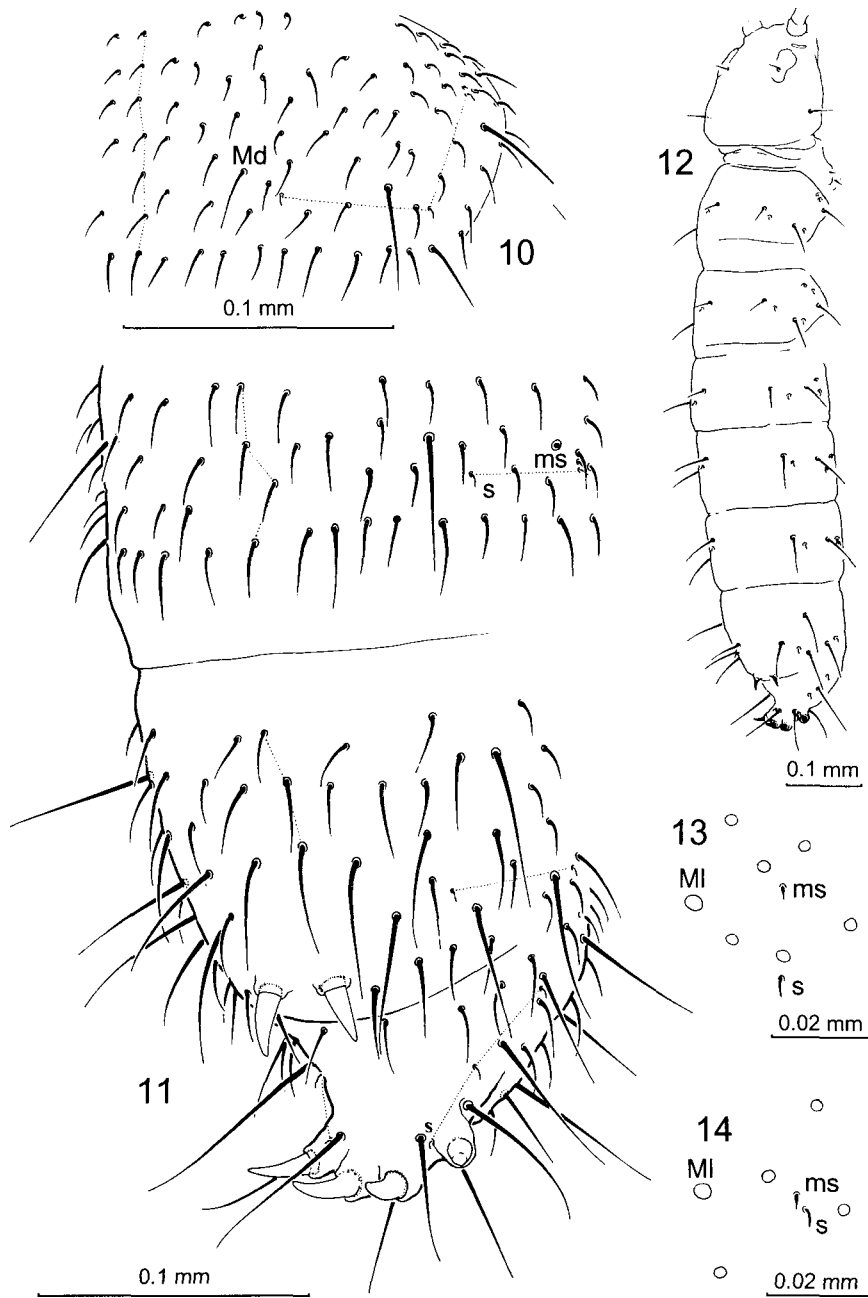
NEW DIAGNOSIS. With general characters of the subfamily Anurophorinae, resembling species of the genus *Tetracanthella*. Abd. 5–6 fused, with 4 heavy spines (transformed setae p_1 and p_2) set on individual papillae in a single transverse row. Medial anterior microchaetae of Abd. 5–6 located near anterior border, not associated with macrochaetae. Abd. 4 with setae p_1 normal or transformed into spines. Integument smooth, with numerous translucent dots representing depressed areas among the primary microscopic meshwork. Large reticulation and polygons absent. Eyes 8+8, postantennal organ present. Terminal antennal segment without apical bulb. Labral chaetotaxy 4/554. Terga with differentiated macrochaetae. Furca and retinaculum well developed. Tibiotarsal hairs acuminate. Unguiculus lanceolate.

Blissia robusta sp. n.

TYPE MATERIAL: Holotype: ♀ (slide), "Canada, Y.T., Ogilvie Mts, 1,400 m. 64°27'N, 139°03'W, 12.vii.1985. Ex. *Anemone*, *Betula*, *Arctostaphylos*, *Geum*. V. Behan leg. 113". Paratypes: 10 (slide) from



Figs 1–9. *Blissia robusta* sp. n. 1 – general habitus, lateral; 2 – maxillary outer lobe; 3 – ocelli and PAO, right; 4 – subapical organ (or) and microsensillum (mi) on antennal segment 4; 5 – antennal segment 3, dorsal; 6 – furca and genital plate, ventral; 7 – furca, lateral; 8 – lateral anal spine with dotted cuticle on basal papilla; 9 – hind tibiotarsus.



Figs 10–14. *Blissia robusta* sp. n. 10 – dorsal chaetotaxy of mesothorax, right side; 11 – dorsal chaetotaxy of abd. 3–6; 12 – distribution of macrochaetae and sensilla; 13 – lateral group of sensilla of abd. 1 (MI – macrochaeta; ms – microsensillum; s – sensillum); 14 – dtto, abd. 3.

the holotype sample, 17 (alcohol) as above except: "1,600 m, 65°00'N, 138°03'W, 6.viii.1985. Dry hillside W.V. Behan leg. 58." All deposited at Canadian National Collection, Ottawa.

DESCRIPTION. Size of adults 0.8–1.0 mm. Colour blue-black with rather scattered, granular pigmentation (Fig. 1). Cuticle smooth, large reticulation and polygons absent. Numerous small translucent dots present all over the body except the appendages. The dots represent depressed areas among the primary microscopic meshwork (Fig. 8). Sensorial chaetotaxy of antennae typical for the subfamily: two ms and one s on Ant. 1; three ms and one s on Ant. 2; one ms and five s on Ant. 3 (Fig. 5) and numerous slender curved sensilla on Ant. 4. Apical bulb absent, a rounded subapical organ and an associated slender sensillum present (Fig. 4). Eyes 8+8, G and H smaller than others. Postantennal organ elongate, with a clear constriction, 3.5–4.0 times as long as diameter of nearest omma (Fig. 3). Maxillary outer lobe with bifurcate palp and 4 sublobal hairs (Fig. 2). Labral chaetotaxy 4/554. Postlabial setae 4+4. Head with distinct macrochaetae.

Dorsal chaetotaxy rather polychaetotic (compared with most *Tetracanthella*). Number of axial setae on each side of Th. 1–Abd. 4: 6–7, 5–6/4444 (including the spines on Abd. 4, Figs 10–11). No ventral setae on thorax. Medial microchaetae of Abd. 5 located near anterior border of the tergum, distant from macrochaetae (Fig. 11). General chaetal ratios: Th. 2 $MI : p_1 = 2.7$, Th. 2 $MI : Md = 2.0$, Abd. 4 $Md : p_2 = 2.0$. Number of macrochaetae on each half of Th. 2–Abd. 4 as 33/222 (Fig. 12). Md on Th. 2–3 and Mdl on Abd. 1 much shorter than other macrochaetae. At least one of the lateral p-setae of Th. 2–3 prolonged (Fig. 10). Number of macrosensilla on each half of Th. 2–Abd. 5 as 33/22223. Microsensilla 11/111 (Fig. 12). Microsensillum on Abd. 3 set just in front of lateral sensillum (Fig. 13). Upper sensillum on Abd. 1–4 set between dorsolateral and lateral macrochaetae (Fig. 12). Abd. 4 with p_1 -setae transformed to spines, about as long as hind claw (Fig. 11). Abd. 5–6 with 4 curved spines on high papillae, set in a single transverse row (Fig. 11). Median pair distinctly thicker than those lateral, slightly longer than hind claw.

Coxa of first pair of legs with setae. Claws without teeth, unguiculus lanceolate, 0.6 times as long as inner edge of unguis. Tibiotarsal tenent hairs 1-2-2, only slightly longer than inner unguis, acuminate. Ventral side of tibiotarsi without macrochaetae. Femora with one ventral macrochaeta. Total number of setae on tibiotarsi 21-21-24. Hind legs with the additional setae D3 and D5. Ventral tube with 4+4 laterodistal and 4 posterobasal setae. Retinaculum with 3+3 teeth, no setae. Furca strong (Figs 6–7). Manubrium with 16–19 setae. Dens rather short, 1.3 times as long as hind claw, with 1 ventral and 3 (rarely 2) dorsal setae. Mucro with 2 teeth. Relative length of manubrium : dens : mucro as 6.5 : 3 : 1. Anterior furcal subcoxae with 6–7 setae, posterior fields with 3 setae.

DISCUSSION

Rusek (1985) stressed four important characters separating *Blissia* from *Tetracanthella*: The smooth cuticle with dots, weak pigmentation, poorly differentiated macrochaetae, and arrangement of the anal spines in a single transverse row. In addition *Blissia* has only 3+3 sensilla on Abd. 5 (4+4 in *Tetracanthella*), one dorsolateral sensillum set near hind corners of Th. 2–3 (absent in *Tetracanthella*), seta a_1 on Abd. 5 close to anterior border of tergum (more posterior, near macrochaeta a_2 in *Tetracanthella*), and maxillary palp bifurcate (simple in all *Tetracanthella*). These characters were verified from a paratype of *B. glabra*.

The pale colour and weak macrochaetae of the type species *B. glabra* are hardly generic characters as similar conditions are found in certain species of *Tetracanthella* (Deharveng, 1987a). Our new species differs from the type species by its darker pigmentation and stronger macrochaetae, but shares the other characters mentioned above. In addition, it has an extra pair of spines on Abd. 4, which by itself could justify the erection of a new genus – following current taxonomic trends within the subfamily (Deharveng, 1987b). However, we want to avoid generic splitting without a firm phylogenetic background, and consequently prefer to modify the definition of *Blissia*.

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