

# *Proisotoma roberti* n.sp. from Greenland, and Redescription of *P. ripicola* Linnaniemi, 1912 (Collembola, Isotomidae)

Arne Fjellberg

Fjellberg, A.: *Proisotoma roberti* n.sp. from Greenland, and redescription of *P. ripicola* Linnaniemi, 1912 (Collembola, Isotomidae).  
Ent. Meddr 59: 81-83. Copenhagen, Denmark, 1991. ISSN 0013-8851.

*Proisotoma roberti* n.sp. is described from SW Greenland and defined in relation to *P. admaritima* Murphy and *P. ripicola* Linnaniemi. The latter species is redescribed from a single syntype. The new species appeared in bottom samples from a shallow stream. Modified claws may be an adaptation to a subaquatic life.

A. Fjellberg, Department of Zoology, Tromsø Museum, N-9000 Tromsø, Norway.

## Introduction

As currently defined, the genus *Proisotoma* has very wide limits and includes a number of groups which certainly deserve generic status. However, progress in the systematics of *Proisotoma* is hindered by lack of precise definition of many taxa. A pilot study of numerous *Proisotoma* species from the Holarctic region - described as well as undescribed - indicates that excellent diagnostic characters are found in the mouth region (prelabral seta, maxilla, maxillary outer lobe), distribution of sensilla on thorax and abdomen, and tibiotarsal chaetotaxy.

During this preliminary survey, an undescribed species from Greenland was discovered. It is similar to both *admaritima* Murphy and *ripicola* Linnaniemi. The latter is a "species inquirenda" (Gisin, 1960: 196), and a redescription is necessary.

## *Proisotoma roberti* n.sp.

Figs. 2-7.

Type locality: Greenland, Agluitsoq (E of Julianehåb). Type material. - Holotype: Female (slide) from "Greenland. Qorlortorsuaq, inner part of Amitsuarsoq (N. branch of Agluitsoq), 25.vii.1990, river bottom sample, R. Bergersen leg." - Paratypes: 5 specimens (slides) from the

same sample. All type specimens deposited at Tromsø Museum, Tromsø.

## Description

Colour dark bluish grey. Largest specimen 1.4 mm. Ocelli 8+8, PAO narrowly elongate with 2 posterior setae (Fig. 4). Antennae slightly shorter than head diagonal, with normal sensillary equipment. Chaetal formula of labrum 2/554. Maxillary palp bifurcate, 3 sublobal hairs. Maxilla as Fig. 7. Lam. 2, 4 and 6 strong, with dense marginal ciliation and coarse denticulation inside. Lam. 1 unusually weak, with marginal ciliation around apex only, and no denticles.

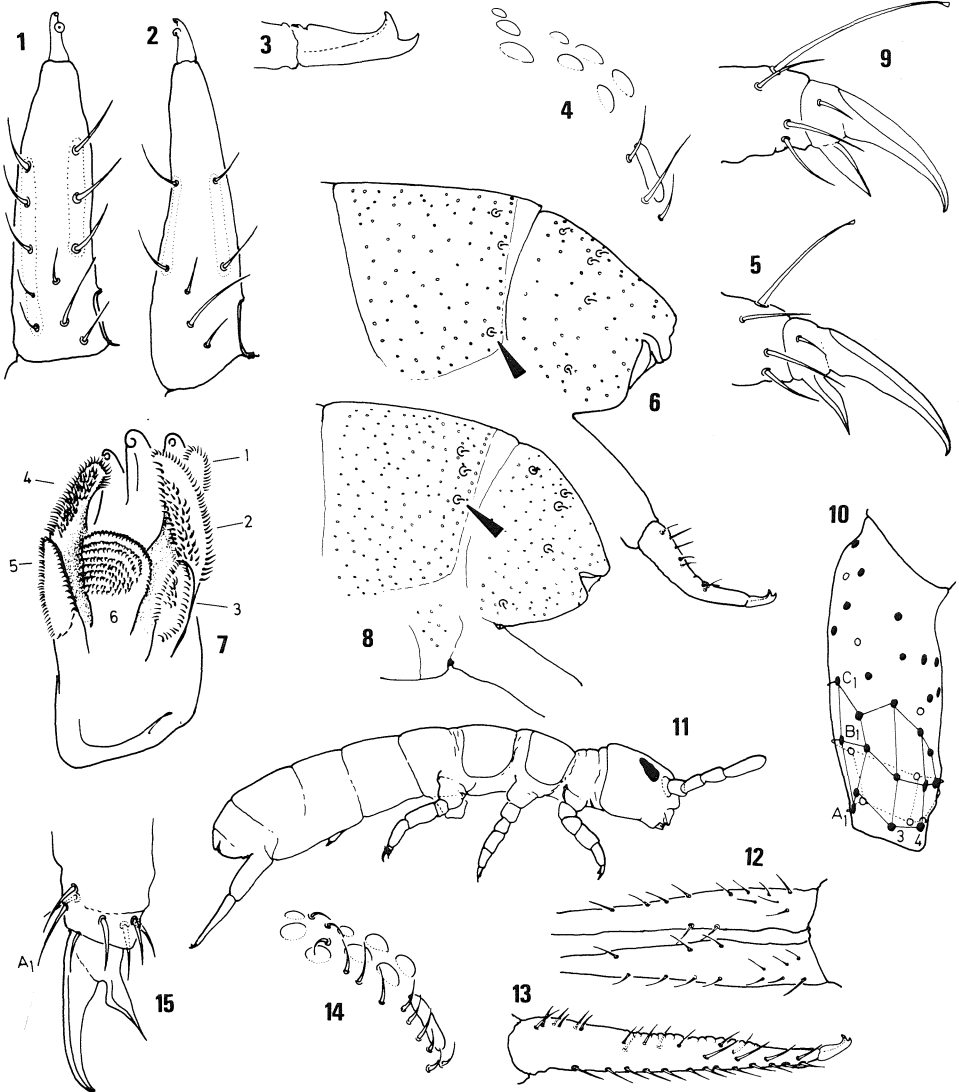
Body integument smooth. Hair cover stiff and spiny, macrochaetae not developed. Some setae with a fine serration. Sensilla of thorax and abdomen: 43/22335. Lateral sensillum on Abd. 4 near hind corner of the tergite (Fig. 6). Abd. 5-6 completely fused. Furca and mucro as Figs. 2-3. Manubrium with 1+1 ventroapical setae. Manubrial thickening simple. Mucro with strong subapical tooth, no lateral seta. Dens with 7 dorsal and many ventral setae. Retinaculum with 4+4 teeth and 2 setae. Ventral tube with 3+3 lateral and 5 posterior setae. No ventral setae on thorax. Basal labial trian-

gles with 3+3 setae. 4+4 setae along ventral line of head. Legs with strong and long claws. Unguis without teeth. Tibiotarsi with a clavate tenent hair (A1) which is shorter than the claws (Fig. 5). The two apical whorls of setae (A and B, cf. Deharveng 1983) complete, each with 7 setae. Apical T-setae absent.

The species is dedicated to Robert Bergersen, Tromsø, who collected this new species during limnological work on Greenland.

### Discussion

The species is very similar to *admaritima*, but differs by a coarser hair cover, stronger



Figs. 1-15. *Proisotoma* spp.: 1-2, dorsal chaetotaxy of right dens of (1) *admaritima* and (2) *roberti* n.sp.; 3-7, *roberti* n.sp.: 3, mucro; 4, right PAO and ocelli; 5, claw and apical setae on left hind leg; 6, distribution of sensilla on Abd. 4-6; 7, left maxilla; 8-9, *admaritima*: 8, sensilla on Abd. 4-6; 9, claw and apical setae on left hind leg; 10-15, *ripicola*: 10, chaetotaxy of right metatibiotarsus; 11, general morphology; 12, dorsal chaetotaxy of dens; 13, lateral view of left dens; 14, right PAO and ocelli; 15, claw and apical setae on right hind leg.

claws, relatively shorter tenent hairs (Figs. 5, 9), and less dorsal hairs on dens (Figs. 1, 2). Two subtle characters are most decisive: In *roberti* the lateral sensillum on Abd. 4 is set in the hind corner, while in *admaritima* it is set closer to the median group (Figs. 6, 8). The maxillary palp of *roberti* is bifurcate, while *admaritima* has a simple palp. There are no clear differences in the maxillary head of the two species. For separation from *ripicola*, see below.

### Distribution and ecology

So far only collected from the type locality on SW Greenland. The species appeared in several bottom samples from a shallow river about two kilometers from the sea. There are good reasons to believe that the specimens were actually living in the streambed. The related species *P. admaritima* lives on rocky sea shores and is able to graze algae on bottom of shallow rock pools. Unlike most Collembola, it has a cuticle which is not water repellent, and it may creep from dry rock right into the water (Fjellberg, many observations). Probably *roberti* has the same ability to "dive". The unusually long claws may be an adaptation to withstand running water.

### Redescription of *Proisotoma ripicola* Linnaniemi, 1912

In the Zoological Museum, Helsinki, there was a single syntype in alcohol with the original label "*Isotoma subtenella* n.sp., Esbo, Löfö. 13.VII.92. K. M. Levander". There is a reference to this specimen in Linnaniemi (1912: 130). It is also listed by Vilkamaa (1988). The specimen was cleared and mounted on slide with Gisin medium. The following redescription is based on this specimen.

Body slender (Fig. 11), size 0.95 mm. Colour pale bluish grey, slightly darker on head. Integument smooth. PAO and ocelli as Fig. 14. Labrum with 4/554 setae. Apical edge with 4 low folds. Maxillary outer lobe with bifurcate palp and 4 sublobal hairs. Maxillary

head with 3 teeth, the two ventral ones appear unusually long, curved and sharply pointed. Lamellae unclear but appear unmodified without long ciliations. Mandibles normal. Basal labial triangles with 3+3 setae, head with 4+4 setae along ventral line. Due to a hundred years in alcohol, most body hairs are transparent and unclear, sensilla invisible. No ventral setae on thorax. Ventral tube with 5+5 lateral (distal) and 6 (2+4) posterior setae. Retinaculum with 4+4 teeth and 2 setae. Manubrium with 1+1 ventroapical setae, manubrial thickening blunt, without spines or teeth. Dens with 12-14 setae, in apical part with 4 strong lateral setae (Figs. 12-13). Ventral side with many setae. Mucro with 2 teeth, no lateral seta. Tibiotarsi with short, acuminate tenent hairs (A1, Fig. 15). Two apical whorls of setae (A, B) complete, each with 7 setae (Fig. 10). Apical T-setae absent. Unguis slender, no lateral or inner teeth. Unguiculus with high inner edge, concave in profile (Fig. 15). Abd. 5-6 clearly separate.

### Discussion

Gisin (1960) places this species close to *admaritima* and uses as key character the number of setae on retinaculum: 2-3 in *ripicola*, 1 in *admaritima*. Among Norwegian specimens of *admaritima* there are frequently individuals with 2 retinacular setae. However, *ripicola* differs from both *admaritima* and *roberti* by the separate Abd. 5-6, absence of clavate tenent hairs, 4 prelabral setae, and more setae on ventral tube and dens.

### References

- Deharveng, L. 1983. Morphologie évolutive des collembolles Neanurinae en particulier de la lignée Neanurienne. - *Travaux du Laboratoire d'Écobiologie des Arthropodes Edaphiques*, Toulouse 4 (2): 1-63.
- Gisin, H. 1960. *Collembolenfauna Europas*. - Museum d'Historie naturelle, Genève. 312 pp.
- Linnaniemi, W. M. 1912. Die Apterygotenfauna Finnlands. II. Spezieller Teil. - *Acta Societatis Scientiarum Fennicae* 40 (5): 1-359.
- Vilkamaa, P. 1988. Lists of the insect types in the Zoological Museum, University of Helsinki. 6. Collembola. - *Acta Entomologica Fennica* 52: 1-8.