Redescription of *Proctolaelaps parvanalis* (Thor, 1930) (Acari: Ascidae) from Spitsbergen

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Individuals of *Proctolaelaps parvanalis* collected in the area around Longyearbyen, Svalbard, which is *terra tipica*, are described. Due to the lack of type material (holotype and paratypes) and complete description, the material became the basis for a detailed description of the species.

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1. Introduction

Proctolaelaps parvanalis was described by Thor in 1930 as *Lasioseius (Lasioseius) parvanalis* based on specimens collected from moss in the area around Longyearbyen (Svalbard). In his study, Thor (1930) merely presented an incomplete description of a female with a photograph and a figure showing the ventral aspect of this female.

Current taxonomic analysis requires the use of more detailed data to fully describe a species. Accurate figures showing the details of taxonomic characters are also necessary. Unfortunately, the lack of a slide collection containing holotype and paratypes of *P. parvanalis* makes it impossible to verify, complete the species description and prepare more comprehensive figures. However, a set of moss samples with a total of 16 specimens of *Proctolaelaps parvanalis* was collected in the area around Longyearbyen during the 9th Polar Expedition organized by Adam Mickiewicz University from Poznan (Poland). These specimens were used to describe the species and prepare the figures.

So far, 70 species of the genus *Proctolaelaps* have been reported worldwide (Gwiazdowicz 2007). Most of them inhabit bark beetle galleries and only few are frequently encountered in soil. It is this second category that *P. parvanalis*, reported only from Spitsbergen so far, belongs. Amongst 23 species of mesostigmatid mites reported from Spitsbergen (Coulson & Refseth 2004, Coulson 2007, Gwiazdowicz & Gulvik 2008) only one belongs to the genus *Proctolaelaps*.

2. Material & methods

Seven moss samples with *P. parvanalis* specimens were collected: Spitsbergen, Longyearbyen (78°13'N 15°33'E), moss, 12 female, 4 male, 28–30.VII.2007, leg. D.J. Gwiazdowicz.

The collected material was transferred to the following collections: University of Life Sciences in Poznan, Poland; Museum of Natural History, London, UK; Field Museum of Natural History, Chicago, USA.

Chaetotaxy, symbols and the numbering sys-

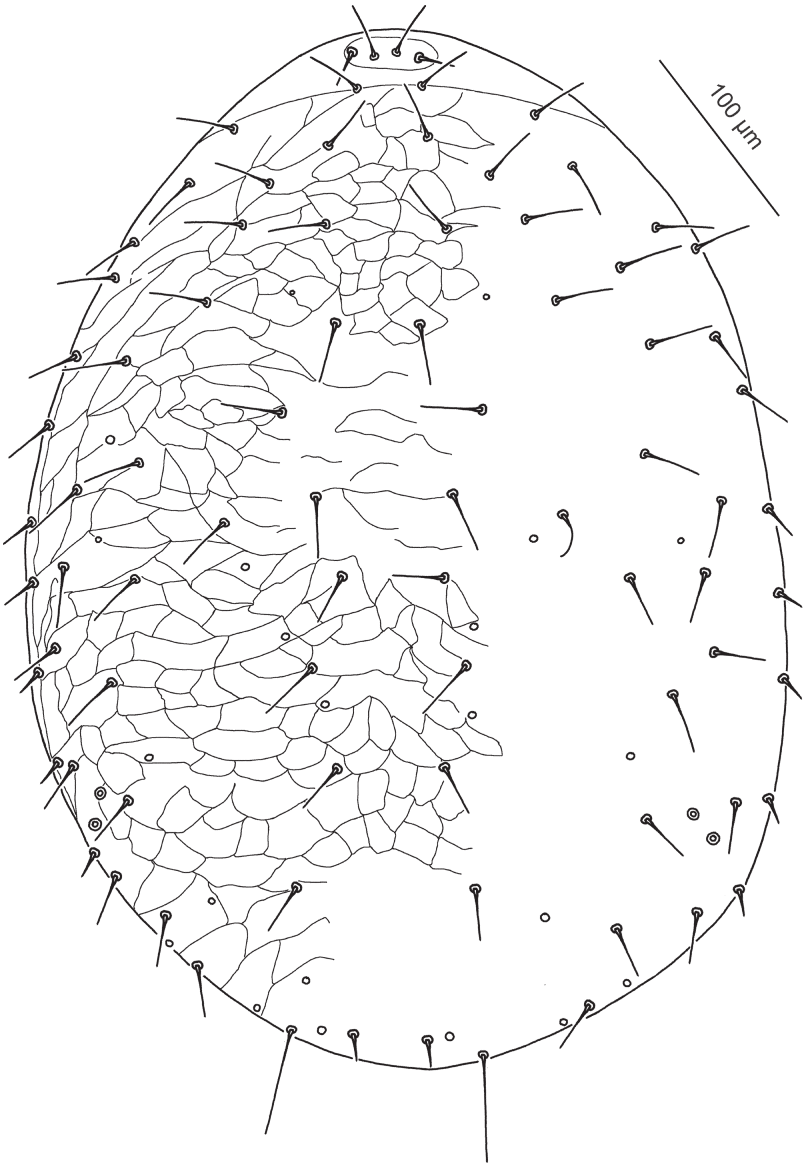

Fig. 1. *Proctolaelaps parvanalis*, dorsal side of female.

tem of setae on the dorsal and ventral side are after Evans (1963), Lindquist & Evans (1965) and Lindquist (1994).

3. Description

Female (N=12). Idiosoma 480–520 µm long and 330–350 µm wide. 42 pairs of simple setae on holodorsal shield. Most of them 30 µm long, only setae Z5 longer (50 µm) (Fig. 1). Setae J5 and setae in R row shortest (15 µm). Entire shield covered with delicate reticulate sculpture. Porae on the shield; best-defined located between setae Z3 and S3.

On ventral side sternal shield 75 µm long and above it two presternal shields with dimensions of 20×8 µm (Fig. 2). Sternal shield covered with reticulate sculpture and with three pairs of simple setae 30 µm long. Porae are located below seta st1 and between setae st2 and st3. Setae st4 on metasternal shields. Genital shield relatively large (140×110 µm) with reticulate sculpture and one pair of setae st5. Exopodal shields in the re-

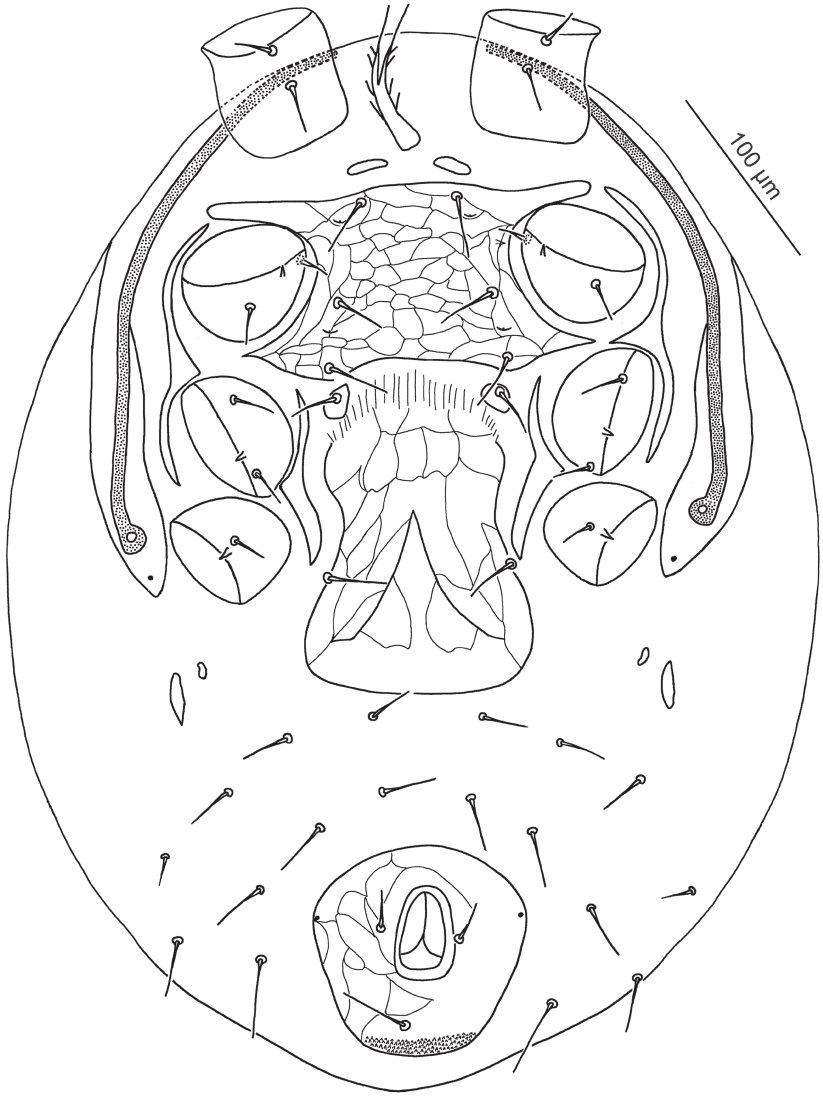

Fig. 2. *Proctolaelaps parvanalis*, ventral side of female.

gion of coxae II–III, while endopodal shields in the region of coxae III–IV. Peritrematal shields along the body sides and peritrema on them reaching coxae I. Stigma at level of coxae IV. Two metapodal shields below peritrematal shield. Larger one with dimensions of 20×5 µm and smaller one with dimensions of 5–7×3–5 µm. Cordiform anal shield (95×95 µm) with reticulate sculpture and three setae in lower part of idiosoma. Para-anal setae measure 25 µm long, while postanal seta 35 µm. Cribrum located below postanal seta. Nine pairs of simple setae, 30–35 µm long, on membrane between genital and anal shields.

An analysis of gnathosoma reveals well-defined corniculate, curved corniculi. Hypostomal setae C1, C2 and C4 of the same length (20 µm) while setae C3 longer (35 µm) (Fig. 3). Seven rows with variable number of denticles in hypostomal groove: Q1 (7), Q2 (8), Q3 (8), Q4 (8), Q5 (10), Q6 (18), Q7 (16). Tectum most frequently rounded and denticulate. Variable number of denticles on tectum (Fig. 4a). Fixed digit with three teeth, while movable digit with one tooth (Fig.4b).

Lengths of legs variable: I 450 µm, II 350 µm, III 350 µm, IV 425 µm. Chaetotaxy of legs characteristic of the genus *Proctolaelaps*. Adult

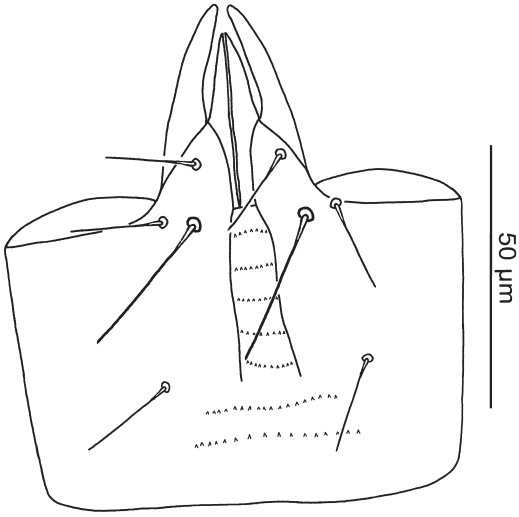

Fig. 3. *Proctolaelaps parvanalis*, gnathosoma.

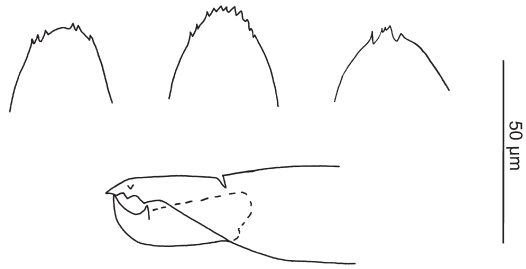

Fig. 4. *Proctolaelaps parvanalis*. – a. Tectums of female. – b. Chelicera of female.

setation of legs I-II-III-IV, genua: 13-11-9-9, tibiae: 13-10-8-10 (Lindquist & Evans 1965) (Fig. 5a–h).

Male (N=4). Idiosoma approx. 450 µm long and 300 µm wide. Holodorsal shield similar as in female, however, simple setae located on it slightly shorter (25 µm). Setae Z5 (45 µm) longest, while setae J5 (12 µm) shortest. Entire shield covered with delicate reticulate sculpture.

Sterno-genital shield, 175 µm long, located between coxae II and IV. Five pairs of simple setae (st1–st5) 30 µm long on the shield. Genital orifice on the anterior edge of sternal shield (Fig. 6). Large, cordiform ventri-anal shield (160×200 µm) below sternal shield with six pairs of ventral setae (30 µm) and three circum-anal setae. Paraanal setae (25 µm) shorter than postanal seta (35 µm). Both genito-sternal and ventri-anal shields covered with reticulate sculpture. On body side, similarly to female, peritremal shields with peritrema reaching coxae I. Stigma at level of coxae IV. Exopodal shields between coxae II and III.

Gnathosoma as in female. The only difference concerns the chelicera as in male the well-defined spermatodactyl, longer than fixed digit by 20 µm, is visible (Fig. 7).

Lengths of legs variable: I 440 µm, II 340 µm, III 340 µm, IV 420 µm. Chaetotaxy as in female.

4. Differential diagnosis

The analysis of the morphological structures shows that *P. parvanalis* is most similar to *P. jura-*

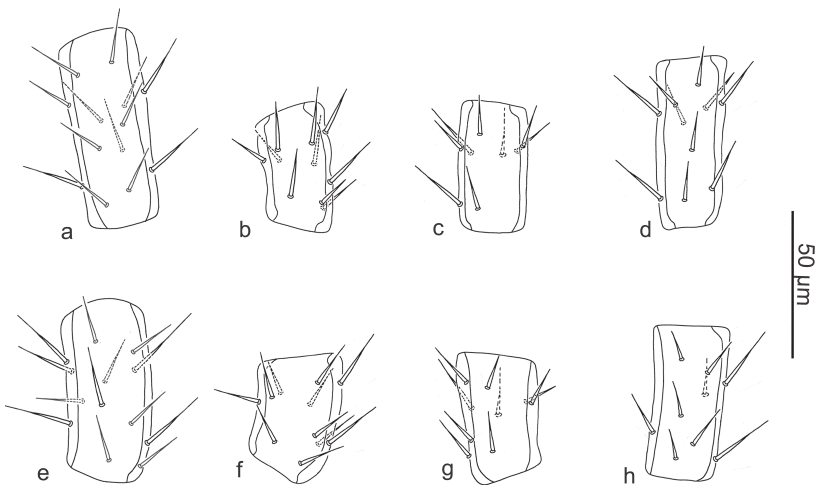

Fig. 5. *Proctolaelaps parvanalis*. – a. Tibia I. – b. Tibia II. – c. Tibia III. – d. Tibia IV. – e. Genu I. – f. Genu II. – g. Genu III. – h. Genu IV.

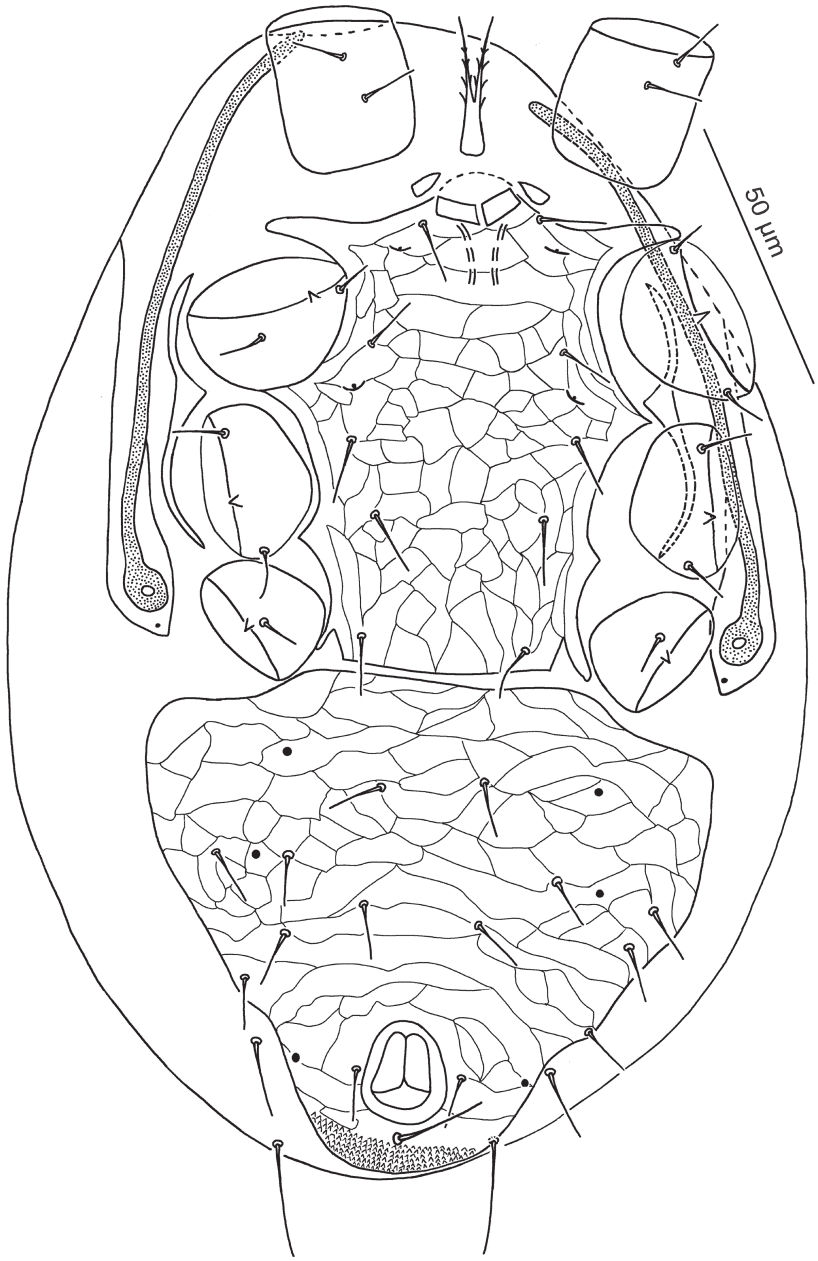

Fig. 6. *Proctolaelaps parvanalis*, ventral side of male.

deus (Schweizer, 1949) which is also frequently found in moss. Both species have short setae on the dorsal side which do not reach the bases of the other setae. Setae r3 are of the same length as the other dorsal setae. A relatively large anal shield is located on the ventral side. Tectum and chelicerae are also similar in both species. However, several differences exist between the species. One of them is sculpture. In *P. parvanalis* it covers the

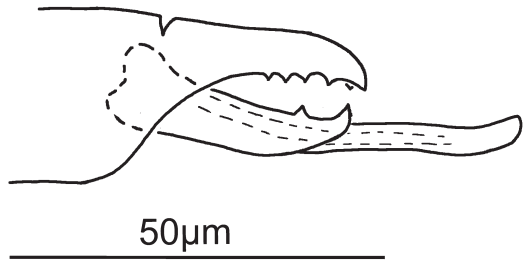

Fig. 7. *Proctolaelaps parvanalis*, chelicera of male.

entire shield, whereas in *P. juradeus* only its rear part. On the ventral side of *P. parvanalis* there is one pair of presternal platelets whereas in *P. juradeus* there are two pairs. In *P. parvanalis* the length and the width of the anal shield are the same, in *P. juradeus* the length of the anal shield is significantly greater than its width. *P. parvanalis* has 9 pairs of ventral setae whereas *P. juradeus* has 11 pairs.

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