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DEUTONYMPHAL MORPHOLOGY OF THE WATER MITE *PIONA NEUMANI* (KOENIKE, 1883) (ACARI, HYDRACHNIDIA, PIONIDAE)

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Abstract. The first illustrated description of the deutonymph of the water mite *Piona neumani* is given.

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Keywords: Hydrachnidia, Pionidae, *Piona*, water mites, morphology, deutonymph.

МОРФОЛОГИЯ ДЕЙТОНИМФЫ ВОДЯНОГО КЛЕЩА *PIONA NEUMANI* (KOENIKE, 1883) (ACARI, HYDRACHNIDIA, PIONIDAE)

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Аннотация. Первое иллюстрированное описание дейтонимфы водяного клеща *Piona neumani*.

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Ключевые слова: Hydrachnidia, Pionidae, *Piona*, водяные клещи, морфология, дейтонимфа.

INTRODUCTION

The water mite *Piona neumani* (Koenike, 1883) is widespread in Europe and known also from Asia and the North America (Viets 1936; 1978; Sokolov 1940; Lundblad 1968). The deutonymph of this species has been previously unknown, while the morphology of its larva is studied in details (Weinstein 1976; 1980). The aim of the present paper is to describe its deutonymph.

MATERIAL AND METHODS

Specimens were collected by the author in the standing waters of the European part of Russia: 2 deutonymps, Yaroslavl Province, Nekouz District, small forest pond near settlement Borok, 4 July 2015. Both specimens are mounted on slide using Hoyer's medium.

Idiosomal setae are named according to Tuzovskij (1987). The following abbreviations are used: P-1-5, pedipalp segments (trochanter, femur, genu, tibia and tarsus); I-Leg-1-6, first leg, segments 1-6 (trochanter, basifemur, telofemur, genu, tibia and tarsus) i.e. III-Leg-4 = genu of third leg; ac. 1-2, genital acetabula (medial, lateral); n = number of specimens measured. The length of appendage segments was measured along their dorsal side, all measurements are given in μm .

Family Pionidae Thor, 1900

Genus *Piona* Koch, 1842

Piona neumani (Koenike, 1883)

(Figs 1-7)

Diagnosis. Deutonymph. Dorsum without plates; genital plates separately, acetabula small and subequal in size, distance between acetabula a little large than diameter any acetabulum on each side; P-2 ventral margin straight, P-3 lateral seta long and situated proximally to middle of segment, IV-Leg-6 with two to three thick, long setae.

Deutonymph, description. Color yellowish-brownish, idiosoma oval, integument soft and finely striated. Dorsum without platelets. The number and position of idiosomal setae typical for the genus *Piona*. All dorsal setae thin and approximately equal in length, but

setae *Fch* (Fig. 1) longer and a little thicker than others idiosomal setae.

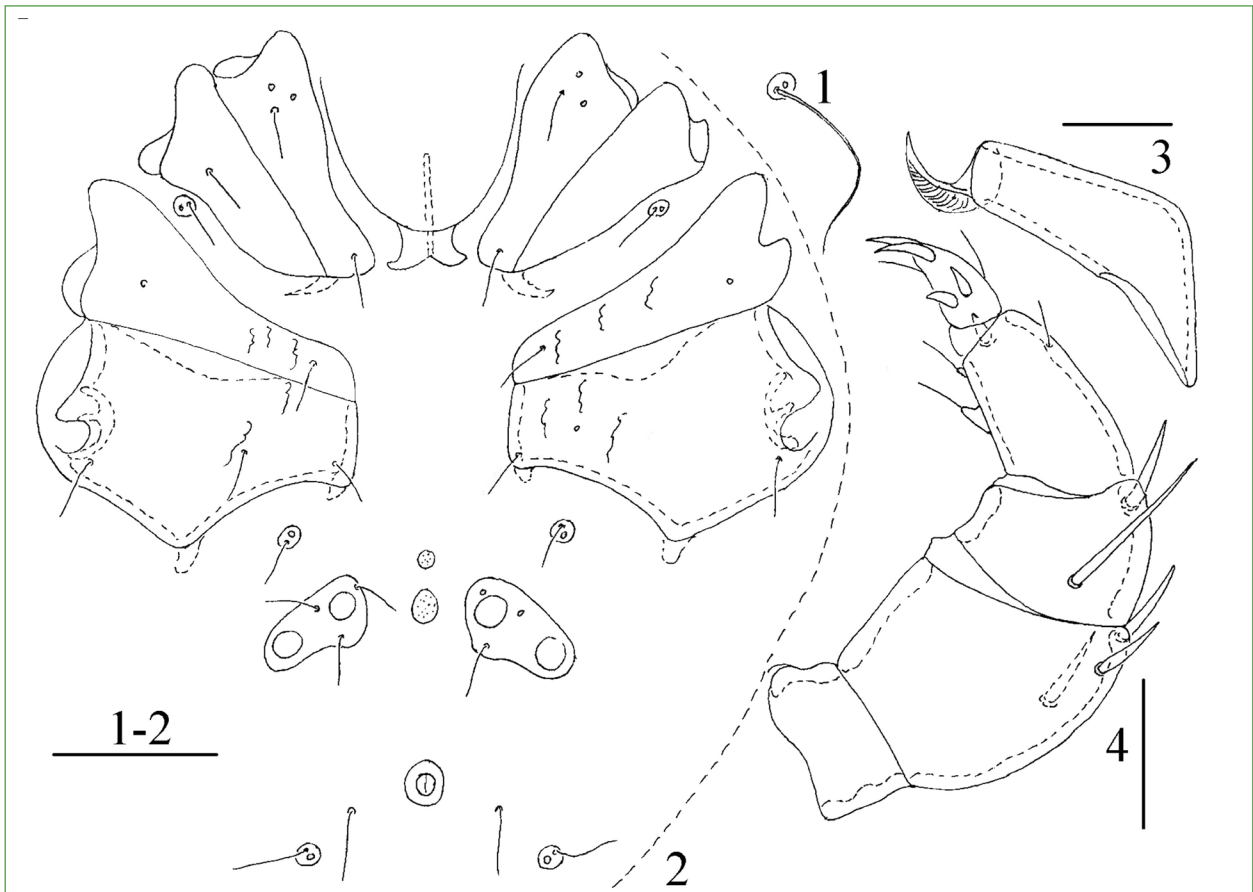
Coxae of legs (Fig. 2) in four groups, cover about half ventral surface in mature specimens. Capitulum with short anchoral projection. Anterior coxal plates with short apodemes. Sclerites bearing setae *Hv* free and located between anterior and posterior coxal groups. Suture line between coxal plates III and IV complete. Medial margin of coxal plate IV 2.0-2.5 times longer than medial margin of coxal plate III. Posterior margins of coxal plates IV forming obtuse angle, apodemes moderately developed. Gonopore is absent, acetabular plates separately, with two subequal acetabula and three thin, short setae, distance between acetabula large than diameter any acetabulum on each side. Genital sclerite larger than pregenital sclerite. Excretory pore surrounded by narrow sclerotized ring and placed anterior to flanking setae (*Pi* and *Ci*).

Chelicera (Fig. 3) with large basal segment and short crescent chela.

Pedipalp (Fig. 4) short and stout: P-1 short, without seta; P-2 large, with straight ventral margin and bearing three dorsodistal setae; P-3 with concave ventral margin, two unequal setae, base of lateral seta situated proximally to middle of segment; P-4 comparatively short, with straight ventral margin, ventral setae well separated, ventral setal tubercle larger than distal one, distoventral peg-like seta short; P-5 with two short proximal and two long distal spine-like setae.

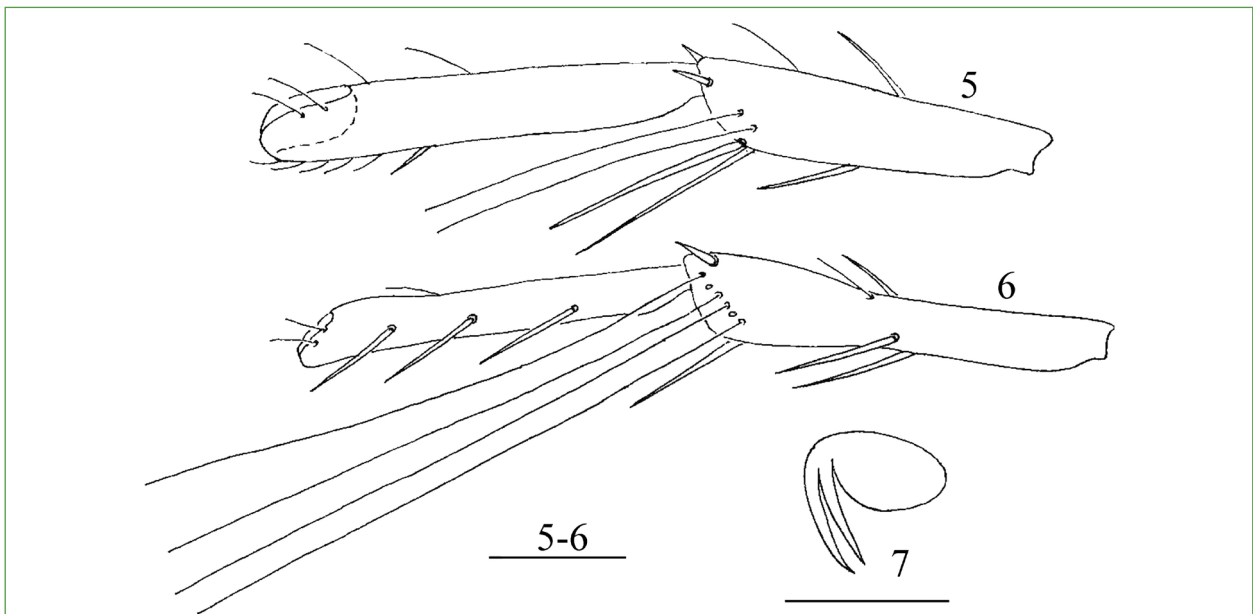
Legs 6-segmented slender: I-Leg-4/5 with two short swimming setae (Fig. 5). Legs II-IV with long swimming setae, their number as following: three setae on II-Leg-4/5 and III-Leg-4, four on III-Leg-5, six on IV-Leg-5; IV-Leg-6 with two to three thick, long setae (Fig. 6). Leg claws with subequal internal clawlets, lamella with convex ventral margin (Fig. 7).

Measurements (n=2). Idiosoma L 650-775; medial margin of coxal plates III L 24-30; medial margin of coxal plates IV L 48-55; acetabular plates L 72-74, W 36-42; cheliceral segments: base L 125, chela L 48-50; pedipalp segments (P-1-5) L: 30-35, 77-80, 45-48, 72-73, 30; legs segments L: I-Leg-1-6: 47-50, 54-66, 72-85,



Figs 1–4. *Piona neumani* (Koenike, 1883), deutonymph: 1 — seta *Fch*; 2 — idiosoma, ventral view; 3 — chelicera; 4 — pedipalp. Scale bars: 16, 18 = 100 μm ; 17, 19 = 50 μm

Рис 1–4. *Piona neumani* (Кoenike, 1883), дейтонимфа: 1 — seta *Fch*; 2 — идиосома, вентральная сторона; 3 — хелицера; 4 — педипальпа. Шкалы: 1–2 = 100 μm ; 3, 4 = 50 μm



Figs 5–7. *Piona neumani* (Koenike, 1883), deutonymph: 5 — I-Leg-5-6; 6 — IV-Leg-5-6; 7 — claw of leg I. Scale bars: 5-6, 7 = 50 μm

Рис. 5–7. *Piona neumani* (Кoenike, 1883), дейтонимфа: 5 — голень и лапка ноги I; 6 — голень и лапка ноги IV; 7 — коготок ноги I. Шкалы: 5–6, 7 = 50 μm

105–110, 120–125, 150–155; II–Leg–1–6: 47–50, 60–65, 72–85, 125–127, 135–145, 160–168; III–Leg–1–6: 54–60, 65–67, 78–85, 128–132, 150–160, 165–170; IV–Leg–1–6: 72–78, 66–72, 95–102, 138–145, 150–155, 145–148.

Remarks. The described deutonymph is similar to *P. nodata* (Müller, 1781), but it is without dorsal platelets, the color yellowish-brownish, P–4 with unequal ventral setal tubercles (Fig. 4). In contrast, in the deu-

tonymph of *P. nodata* the dorsal platelets present, the color red, P–4 with subequal ventral setal tubercles (Tuzovskij 1990).

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