

DEUTONYMPHAL MORPHOLOGY OF THE WATER MITE *PIONA STJÖRDALENSIS* (THOR, 1897) (ACARI, HYDRACHNIDIA, PIONIDAE)

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[Тузовский П.В. Морфология дейтонимфы водяного клеща *Piona stjördalensis* (Thor, 1897) (Acari, Hydrachnidia, Pionidae)]

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

Summary: The first illustrated description of the deutonymph of the water mite *Piona stjördalensis* is given.

Резюме: Дается первое иллюстрированное описание дейтонимфы водяного клеща *Piona stjördalensis*.

INTRODUCTION

The water mite *Piona stjördalensis* (Thor, 1897) was for a long time treated as a form, variety, or subspecies of *Piona coccinea* (Koch, 1836) [K.H. Viets, 1936, 1956; Sokolow, 1940; Lundblad, 1962, etc.]. The deutonymph of this species has been previously unknown, while the morphology of its larva is studied in details [Wainstein, 1980; Davids & Kouwets, 1987]. The purpose 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: 8 deutonymphs, Samara Province, National natural Park "Samara Luka", village Koltsovo, small lakes, June-July 1992; 2 deutonymphs, Yaroslavl Province, Nekouz District, Rybinsk reservoir near settlement Borok, August 2014. All specimens are mounted on slides using Hoyer's medium.

Idiosomal setae and lyriform organs 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

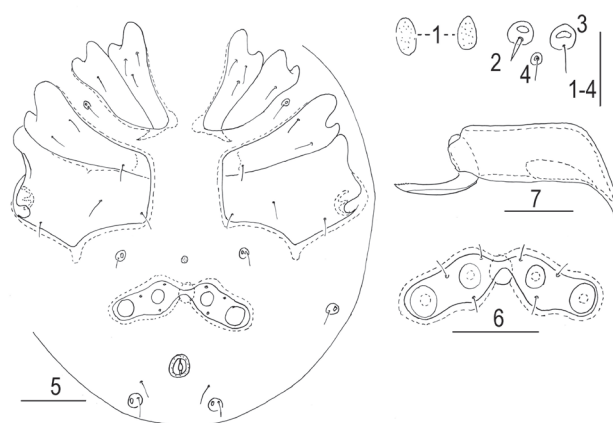
***Piona stjördalensis* (Thor, 1897)**

(Figs 1-11)

Diagnosis. Deutonymph. Genital plates fused to each other medially, lateral acetabulum larger than

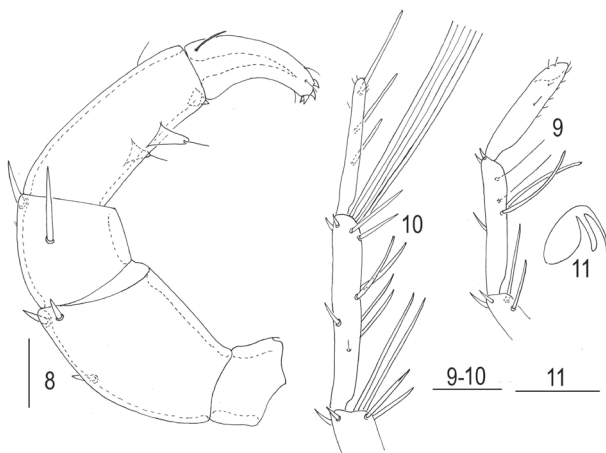
medial acetabulum on each side; P-2-4 ventral margin straight, P-3 lateral seta situated distally to middle of segment.

Deutonymph, description. Color grayish green, idiosoma oval, integument soft and striated. Dorsum with two small elongated platelets, ratio L/W 1.9-2.1 (Fig. 1). Number and position of idiosomal setae typical for the genus *Piona*. All dorsal setae thin and approximately equal in length, but setae *Fch* (Fig. 2) thicker and shorter than other idiosomal setae associated with glandularia (Fig. 3) and trichobothria (Fig. 4). Coxae of legs (Fig. 5) in four groups, cover about half of ventral surface in mature specimens. Anterior coxal plates with short apodemes. Sclerites bearing setae *Hv* free and located between anterior and pos-



Figs. 1-7. *Piona stjördalensis* (Thor, 1897), deutonymph: 1 – dorsal plates; 2 – seta *Fch*; 3 – seta with associated glandularia; 4 – trichobothria *Oi*; 5 – ventral view; 6 – genital field; 7 – chelicera. Scale bars: 1-4, 7 = 50 μm ; 5, 6 = 100 μm .

Рис. 1-7. *Piona stjördalensis* (Thor, 1897), дейтонимфа: 1 – дорсальные пластинки; 2 – щетинка *Fch*; 3 – щетинка с сопутствующей железой; 4 – трихоботрия *Oi*; 5 – вентральная сторона; 6 – генитальное поле; 7 – хелицера. Шкалы: 1-4, 7 = 50 μm ; 5, 6 = 100 μm .



Figs. 8-11. *Piona stjördalensis* (Thor, 1897), deutonymph: **8** – pedipalp, lateral view; **9** – distal part of genu, tibia and tarsus of leg I; **10** – distal part of genu, tibia and tarsus of leg IV; **11** – claw of leg I. Scale bars: **8, 11** = 50 μm ; **9, 10** = 100 μm .

Рис. 8-11. *Piona stjördalensis* (Thor, 1897), deutonymph: **8** – педипальпа, боковой вид; **9** – дистальная часть колена, голень и лапка ноги I; **10** – дистальная часть колена, голень и лапка ноги IV; **11** – коготок ноги I. Шкалы: **8, 11** = 50 μm ; **9, 10** = 100 μm .

terior coxal groups. Suture line between coxal plates III and IV complete. Medial margin of coxal plate IV 2.0–2.8 times longer than medial margin of coxal plate III. Posterior margins of coxal plates IV forming right or obtuse angle, apodemes slightly developed. Gonopore is absent, acetabular plates fused to each others medially, with two unequal acetabula and three thin, short setae, lateral acetabulum larger than medial acetabulum on each side (Fig. 6). Genital sclerite much larger than pregenital sclerite. Excretory pore surrounded by narrow sclerotized ring and placed anterior to setae *Pi*.

Chelicera (Fig. 7) with large basal segment and short crescent stylet.

Pedipalp rather slender (Fig. 8): P-1 short, without seta; P-2 large, with straight ventral margin and bearing three short subequal dorsal setae; P-3 with straight ventral margin, two short unequal setae, base of lateral seta located slightly distally to middle of segment; P-4 with straight ventral margin, both ventral setae located on small unequal tubercles, distoventral spine short pointed; P-5 with concave ventral margin, proximal solenidion, three short, thin setae and four thick distal spines.

Legs 6-segmented slender, I-Leg-4 without swimming seta, I-Leg-5 with two short swimming setae (Fig. 9). Legs II–IV with long swimming setae, their number as following: two setae on II-Leg-4 and III-Leg-4, three to four on II-Leg-5, four to five on III-Leg-5, five to six on IV-Leg-5; IV-Leg-6 with three thick, long unequal setae (Fig. 10). Leg claws with long pointed external and short obtuse internal clawlets, lamella with convex ventral margin (Fig. 11).

Measurements (n=10). Idiosoma L 700–875; dorsal plates L 45–60, W 24–30; coxal field L 330–360; medial margin of coxal plates III L 28–32; medial margin of coxal plates IV L 60–85; acetabular plates L 48–55, total W 170–185; cheliceral segments: base L 120–130, stylet L 54–60; pedipalp segments (P-1-5) L: 27–30, 115–125, 60–72, 115–130, 78–85; legs segments L: I-Leg-1-6: 45–48, 65–78, 75–90, 110–135, 150–170, 140–150; II-Leg-1-6: 45–48, 70–90, 90–105, 135–155, 165–195, 155–170; III-Leg-1-6: 55–65, 75–90, 90–105, 135–165, 185–210, 160–175; IV-Leg-1-6: 80–95, 90–110, 110–130, 165–195, 195–230, 160–175.

Distribution. Europe and Asia [Viets K.H., 1936, 1956; Sokolow, 1940; Lundblad, 1968; Viets K.O., 1978].

Remarks. The described deutonymph is similar to *P. coccinea* (Koch, 1836), but smaller and with relatively short appendages; the color is grayish green, the acetabular plates are fused medially (Fig. 6), the lateral acetabula are larger than medial ones, IV-Leg-6 with three long, thick setae (Fig. 10). In contrast, in the deutonymph of *P. coccinea* the color is red, the acetabular plates are not fused medially, the lateral and medial acetabula subequal, IV-Leg-6 with four long, thick setae [Tuzovski, 1990].

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