

Larval morphology of the water mite *Mideopsis roztozcensis* Biesiadka & Kowalik (Acariformes: Mideopsidae)

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The water mite *Mideopsis roztozcensis* is for the first time recorded from Russia (North Caucasus). An illustrated description of its larva is given.

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Two species of the genus *Mideopsis* Neuman are known in the fauna of Russia and adjoining countries: *M. orbicularis* (Müller, 1776) and *M. krassipes* Soar, 1904 (Sokolow, 1940). A new species *M. rossicus* Tuzovskij has been described recently (Tuzovskij, 2002). One more species of this genus, *M. roztozcensis* Biesiadka & Kowalik, 1979, is found by the author in the North Caucasus. The morphology of adult mites of *M. roztozcensis* was investigated in details (Biesiadka & Kowalik, 1979), a description of the deutonymph was given by Рельж (2001), the larva was unknown. The geographical distribution of *M. roztozcensis* includes the following countries: Poland (Biesiadka & Kowalik, 1979), Germany (Martin & Brinkmann, 2003), Bosnia and Herzegovina, Serbia and Montenegro, Bulgaria (Рельж 2001, 2003), Iran (Рельж et al., 2004).

The following abbreviations are used: *c1* – coxal seta located posteromedially on coxa I; *c2* – coxal seta located posterolaterally on coxa I; *c3* – coxal seta located posterolaterally on coxa II; *c4* – coxal seta located anteriorly on coxa III; *s* – solenidion; *ac* – acanthoid seta; *tmas* – transverse muscle attachment scar.

***Mideopsis roztozcensis* Biesiadka & Kowalik, 1979**
(Figs 1-10, 12-13)

Material examined. Six larvae, reared from two females, **Russia, Krasnodar Terr.**, Seversk Distr., Ubin river near settlement Ubinskaya (P.V. Tuzovskij). Each mature female was contained in a separate glass cylinder 10 mm in diameter and 10 mm high. The duration of embryonic period was 10-13 days at room temperature.

Description. Larva (nomenclature of idiosomal setae and lyriform organs according to Tuzovskij, 1987). Body of unengorged larvae roundish; dorsal shield oval, covering almost all dor-

sum of larva (Fig. 1) and bearing 4 pairs of hairs (*Fp*, *Vi*, *Oi*, *Hi*). Setae *Fp* and *Oi* branched, usually split into 2, sometimes 3 branches, other idiosomal setae simple. Setae *Fch*, *He*, *Sci* and first 2 pairs of lyriform organs (*i1-i2*) located on soft interscutal membrane.

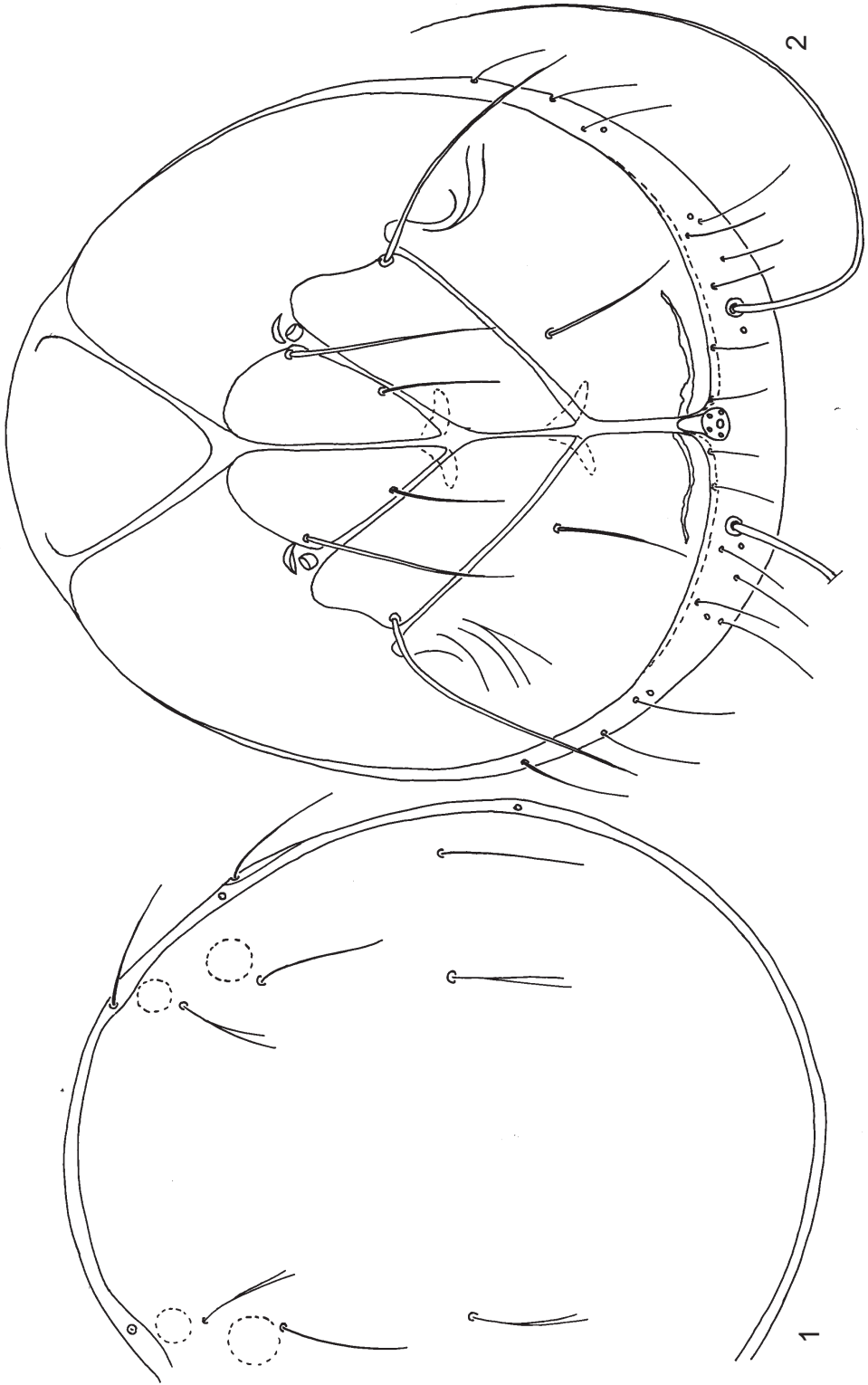
Border between all coxae of legs distinct (Fig. 2). Coxae III with extremely developed lateral projections, with setae *Oi* on their anterolateral edges. Anterior margin of coxae I convex; external setae (*c2*) longer than internal ones (*c1*). Setae on coxae II (*c3*) long and thick, almost twice as long as setae (*c4*) on coxae III. Posteromedial apodeme of coxae I and coxae II of approximately identical form and size. Well developed *tmas* located in posteromedial corner of coxae III. In posterior part of body, setae *Sce*, *Li*, *Le*, *Si*, *Se*, *Ci*, *Pi*, *Pe* and 3 pairs of lyriform organs (*i3-i5*) situated on soft interscutal membrane. Setae *Ci* very long and thick, other ventral setae short and thin. All lyriform organs ring-shaped. Dorsal shield and coxa of legs with smooth surface.

Urstigma very small, occupying lateral position on border between coxae I and II, supplied with cap (Fig. 3).

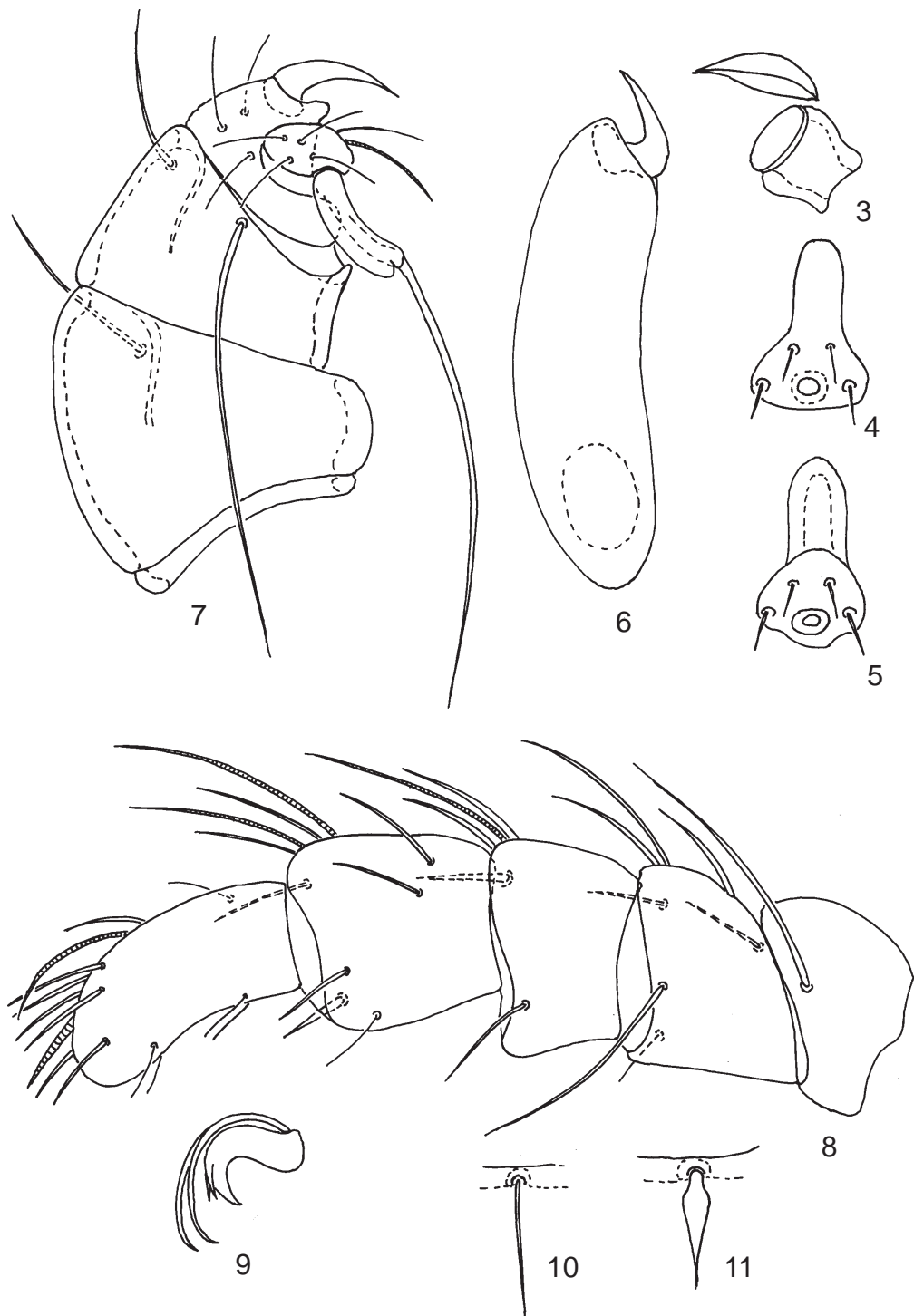
Anal plate small, elongate (Figs 4-5). Anal opening located in posterior part of plate between setae *Ae*, both pairs of setae (*Ai*, *Ae*) short, equal in length.

Basal segment of chelicera (Fig. 6) large, with convex dorsal edge. Cheliceral stylet small, crescent-shaped, without subapical teeth.

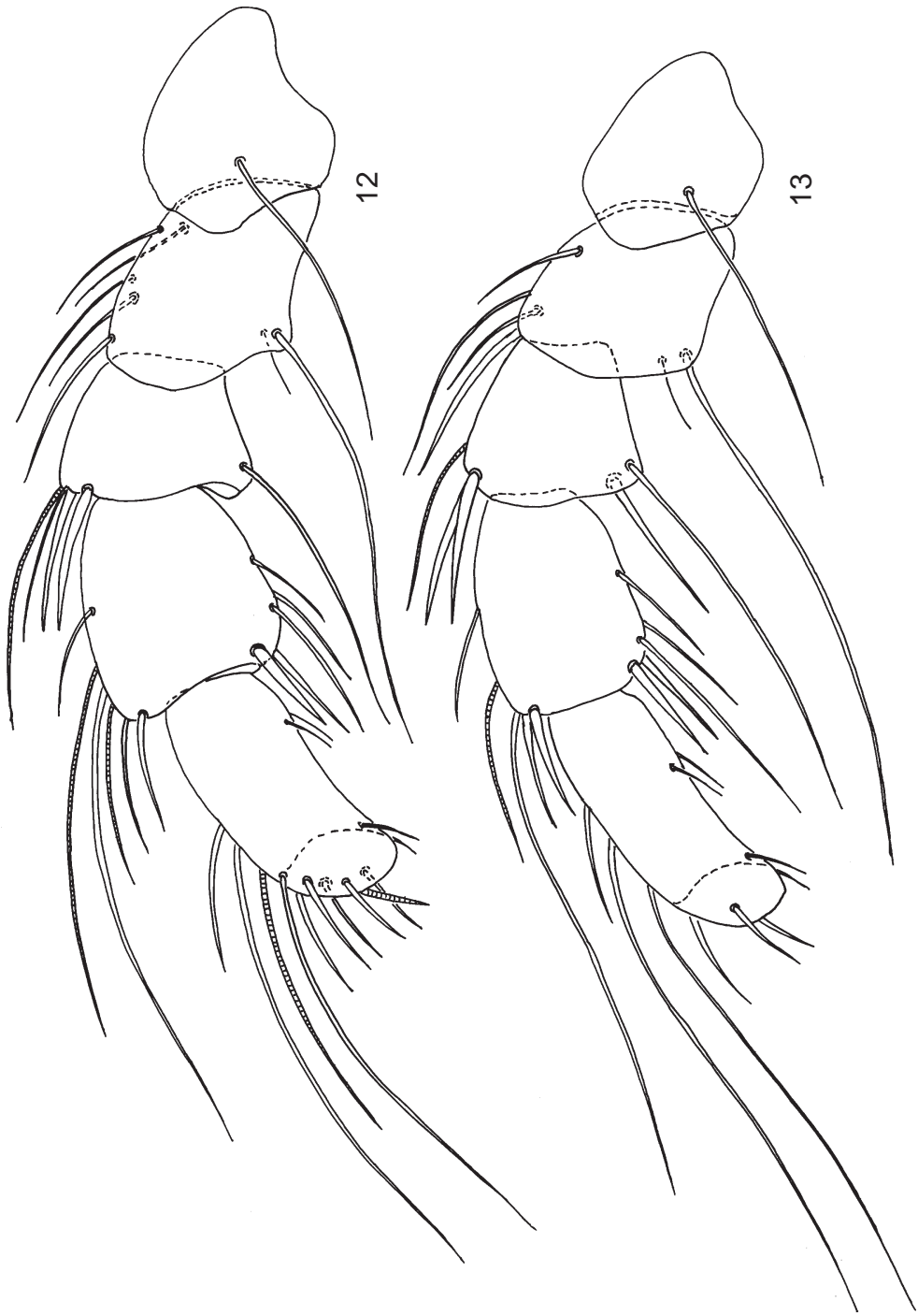
Pedipalps: short, height of first three segments exceeding their width (Fig. 7). Trochanter very short and without setae; femur with one distolateral seta; genu with 2 setae (long and short); tibia with 3 thin subequal setae and a large dorso-distal claw; tarsus small, bearing 1 solenidion and 6 simple setae, one of which very long and with lobed basis.



Figs 1-2. *Mideopsis roztozczensis*, larva, idiosoma: **1**, dorsal view; **2**, ventral view.



Figs 3-11. 3-10. *Mideopsis roztoczensis*, larva: 3, urstigma with cap; 4-5, anal plate; 6, chelicera, lateral view; 7, pedipalp, lateral view; 8, leg I; 9, claws; 10, setae *Pe*. 11. *Mideopsis orbicularis*, larva: seta *Pe*.



Figs 12-13. *Mideopsis roztozczensis*, larva: **12**, leg II; **13**, leg III.

Shape and arrangement of setae on the leg segments as shown in Figs 8, 12-13. Total number of setae on legs, excluding eupathids, as follows (number of specialized setae shown in brackets):

Leg	Tr	F	Ge	Ti	Ta
I	1	7	5 (s)	9 (2s)	14 (s, ac)
II	1	7	5 (s)	11 (2s)	14 (s, ac)
III	1	6	5 (s)	10 (s)	10

Femora of legs II and III each with very long ventrodorsal seta, which is longer than seta on trochanter of these legs. Proximal solenidion on tibiae of legs I and II longer than distal one. Tibiae of legs II and III each with 1 long swimming dorsal seta; tarsi of legs II and III each with 2 long swimming dorsal setae. Empodium thick and short, with two distolateral teeth; ambulacra long, thin, without distolateral teeth (Fig. 9).

Measurements, μm . Length of dorsal shield 185-210, its width 175-190; length of medial edge of coxae I 57-65, of coxae II 32-38, of coxae III 28-32; length of anal plate 16-22, its width 9-12; length of basal segment of chelicera 45-48, length of cheliceral stylet 12-13; length of pedipalpal segments: 4-6, 32-35, 19-23, 10-13, 9-10; length of leg segments: I – 27-32, 22-26, 19-23, 28-32, 32-40; II – 25-32, 22-29, 19-26, 30-35, 35-42; III – 28-32, 25-30, 22-26, 32-39, 38-43.

Comparison. The larva of *M. roztoczensis* is similar to that of *M. orbicularis*, from which it is easily distinguishable by the shape of setae *Pe* and structure of the pedipalpal tarsus. In the larva of *M. orbicularis*, the setae *Pe* are lanceolate (Fig. 11), pedipalpal tarsus with relatively thick solenidion, one of the short setae is spine-like (Wainstein, 1980). In contrast, in the larva of *M. roztoczensis* the setae *Pe* are setiferous (Fig. 10),

pedipalpal tarsus with thin solenidion, all short setae thin and equal in size.

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