

A new species of the water mite genus *Thyas* Koch from Magadan Province of Russia (Acariformes: Hydryphantidae)

P.V. Tuzovskij

Tuzovskij, P.V. 2000. A new species of the water mite genus *Thyas* Koch from Magadan Province of Russia (Acariformes: Hydryphantidae). *Zoosystematica Rossica*, 8(2), 1999: 243-250.

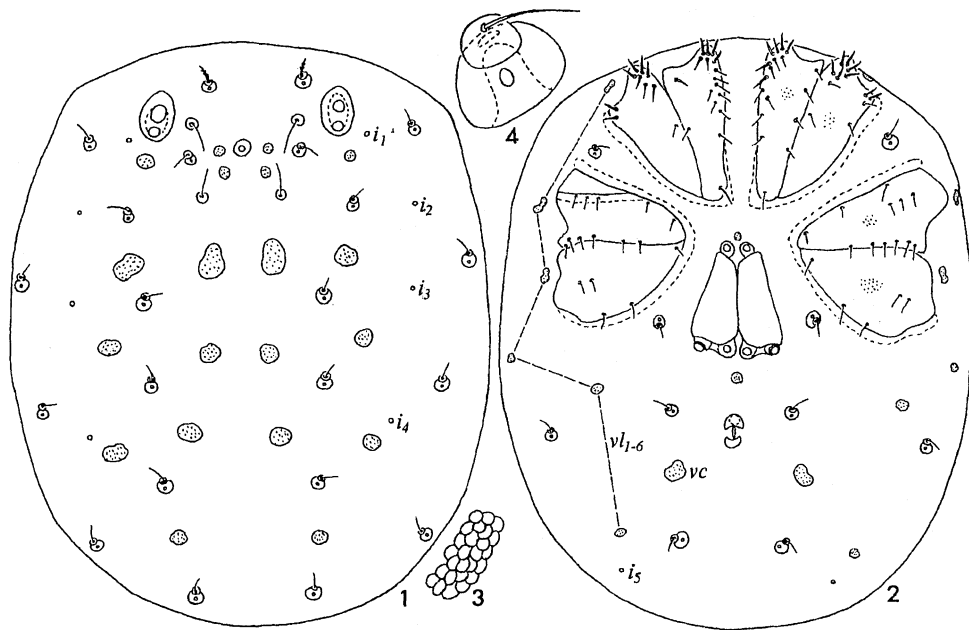
An illustrated description of the water mite *Thyas magadanensis* sp. n. (female, male and larva) from Magadan Province of Russia is given. Comparison of *T. magadanensis* sp. n. with the similar species *T. bruzelii* is presented.

P.V. Tuzovskij, Institute of Ecology of the Volga River Basin, Russian Academy of Sciences, Togliatti 445003, Russia.

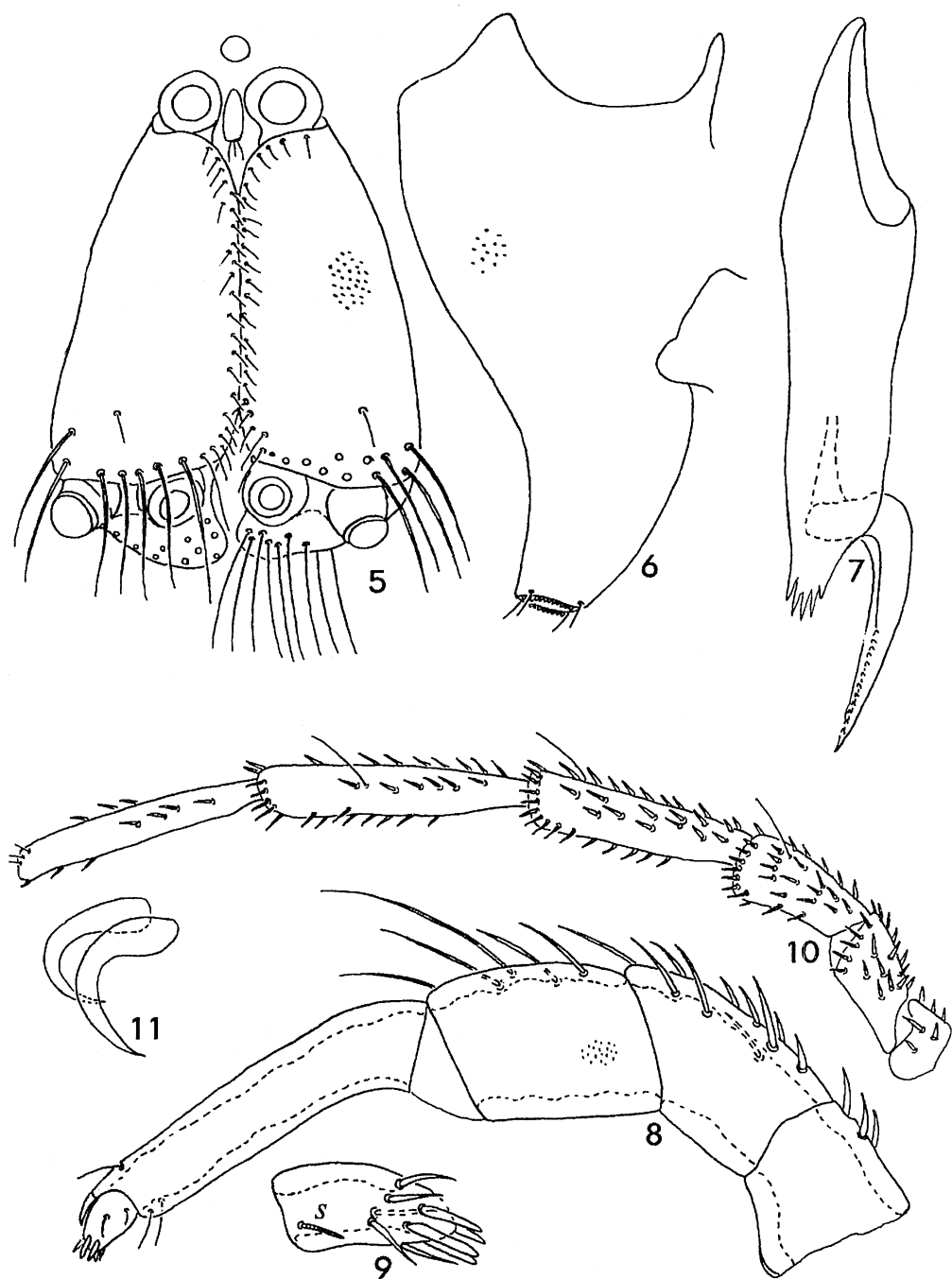
Introduction

The processing of hydrobiological samples collected by the author in temporary water bodies in Magadan Province in the basins of the rivers Kolyma and Anadyr, has allowed us to reveal a new species of the genus *Thyas*.

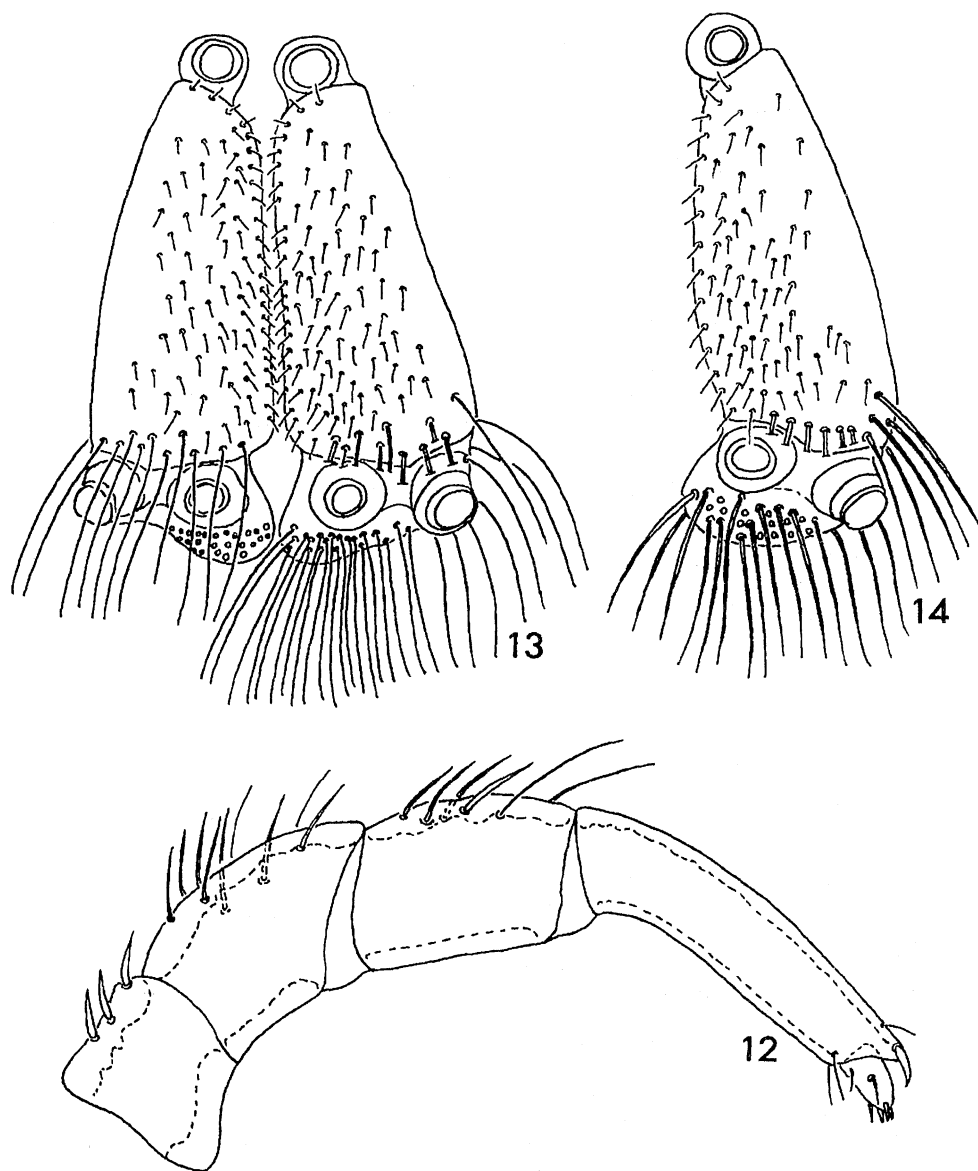
The following abbreviations are used: L – length, W – width, Fch, Fp, Vi, Oi – anterior body setae, ac – acanthoid, h₁-h₂ – capitulum setae, s – solenidion, e – eupathidium, i₁-i₅ – lyriform organs, ur – urstigma, vc – ventrocentralia plate, vl₁₋₆ – ventrolateral plates. Nomenclature of lyriform organs and ventral plates follows Tuzovskij (1975, 1987).



Figs 1-4. *Thyas magadanensis* sp. n., female: 1, dorsal surface; 2, ventral surface; 3, fragment of integument; 4, body seta and glandularia.



Figs 5-11. *Thyas magadanensis* sp. n., female: 5, genital organ; 6, capitulum, lateral view; 7, chelicera; 8, palp; 9, tarsus of palp; 10, leg II; 11, claws.



Figs 12-14. *Thyas magadanensis* sp. n., male: 12, palp; 13, genital organ; 14, genital plate.

***Thyas magadanensis* sp. n.**

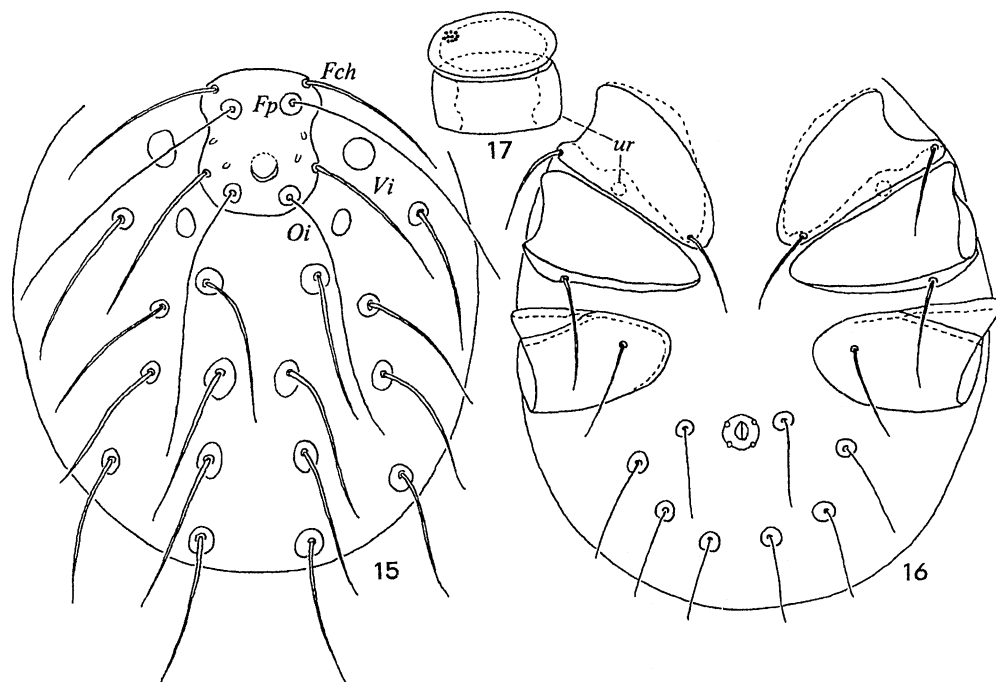
(Figs 1-28)

Holotype. ♀, **Russia, Magadan Prov.**, Anadyr Distr., sedge-sphagnum bog on the left bank of the river Anadyr, 5 km upstream of Markovo, 22.VI. 1981 (P.V. Tuzovskij). Slide 2904 is deposited in the collection of the author.

Paratypes. **Russia, Magadan Prov.**, 1 ♂, same data as holotype; 6 ♀, 4 ♂, Tenka Distr., temporary water bodies in Kolyma basin close to village Agrobasa; 1 ♀, Tenka Distr., habitat as above but close to village

Kulu; 1 ♀, Yagodnoe Distr., near the mountain Aborigen, habitat as above. All paratypes adults, except the first: VI.-VII. 1979, 1987, 1988. 20 larvae, reared in laboratory conditions.

Description. Female (Figs 1-11). Colour red. Body with fore corners more or less distinct. The shape, number and arrangement of body setae, plates and lyriform organs as shown in Figs 1-3. Integument densely studded with rounded flat papillae (Fig. 4). Coxae of legs in mature specimens about

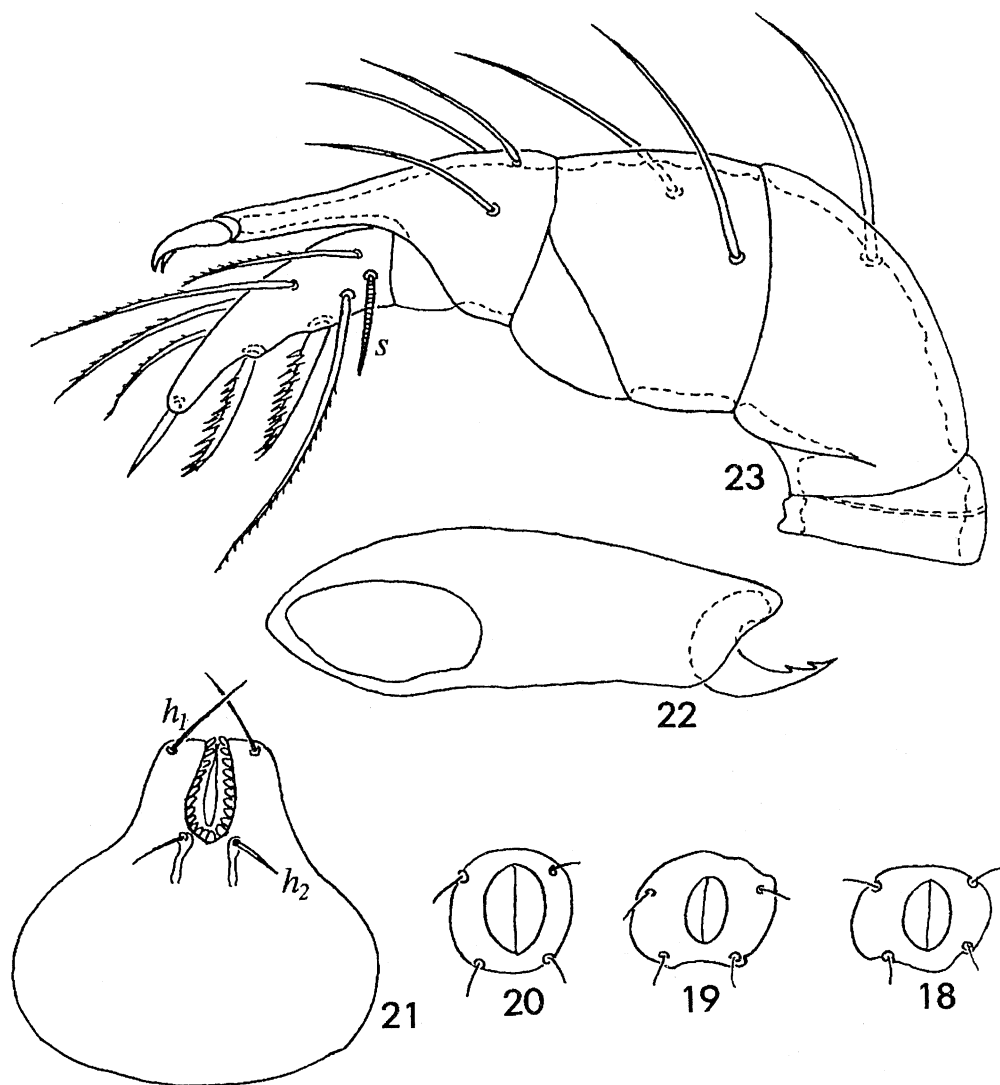


Figs 15-17. *Thyas magadanensis* sp. n., larva: 15, dorsal surface; 16, ventral surface; 17, urstigma.

half as long as body. Anterolateral setae of coxae I-II thick, other setae thin. On ventral surface of body 7 pairs of plates: 1 pair of ventrocentralia and 6 pairs of ventrolateral. Anal opening bounded by 2 semilunar sclerites. Genital organ only slightly projecting outside of coxae IV. Praegenital and postgenital sclerites rounded. Genital plates (Fig. 5) rather large and wide; their anterior and inner borders with numerous short setae; posterior edges mainly with long setae. Second and third pairs of papillae situated at short bases and forming a transverse line. Posteromedial ledges of genital organ well expressed and with numerous long setae. Capitulum (Fig. 6) with long rostrum. Mouth opening surrounded by very small papillae and 2 pairs of short setae. Basal segment of chelicera (Fig. 7) long, with scarcely distinct, small dorsal tubercle. Pedipalp (palp) (Fig. 8) slender. Ventral edge of femur half as long as dorsal edge. Genu of palp usually with 4-5, sometimes with 6-7 dorsal setae. Tibia of the same thickness almost along its whole length and half as thick as genu. Dorsal thorn and setae concentrated in distal part of tibia. Tarsus (Fig. 9) with short proximal solenidion, 5 thick setae and 4 distal thorns. Legs without swimming hairs, with numerous short thornlike setae

(Fig. 10). Claws (Fig. 11) simple. Measurements, in μm . All parameters vary considerably. Body of mature specimens: L = 1385-1710; capitulum: L = 430-530; genital flaps: L = 310-375, W = 130-140; basal segment of chelicera: L = 385-470; claw of chelicera: L = 165-220; palpal segments dorsally: L = 95-100, 120-145, 225-270, 45-50; segments of legs, I: L = 120-130, 205-245, 165-210, 260-300, 335-385, 270-325; II: L = 115-125, 195-245, 85-220, 285-365, 390-490, 325-425; III: L = 115-145, 185-230, 180-220, 290-360, 380-480, 340-390; IV: L = 245-300, 210-260, 245-285, 430-530, 470-610, 385-465.

Male (Figs 12-14). Similar to female. Differs in the smaller size and structure of the genital apparatus. Genu of palp (Fig. 12) usually with 5-6, sometimes with 4 or 7 dorsal setae. Surface of genital flaps (Figs 13-14), except for their lateral edges, with very numerous short hairs. Posterior edges of genital flaps with long setae. Measurements, in μm . Body of mature specimens: L = 1500-1795; capitulum: L = 415-490; genital flaps: L = 285-365, W = 120-145; basal segment of chelicera: L = 375-425; claw of chelicera: L = 120-145; palpal segments dorsally: L = 80-100, 155-170, 115-140, 240-270, 40-45; segments of legs, I: L = 115-130, 185-220, 180-215, 260-300,

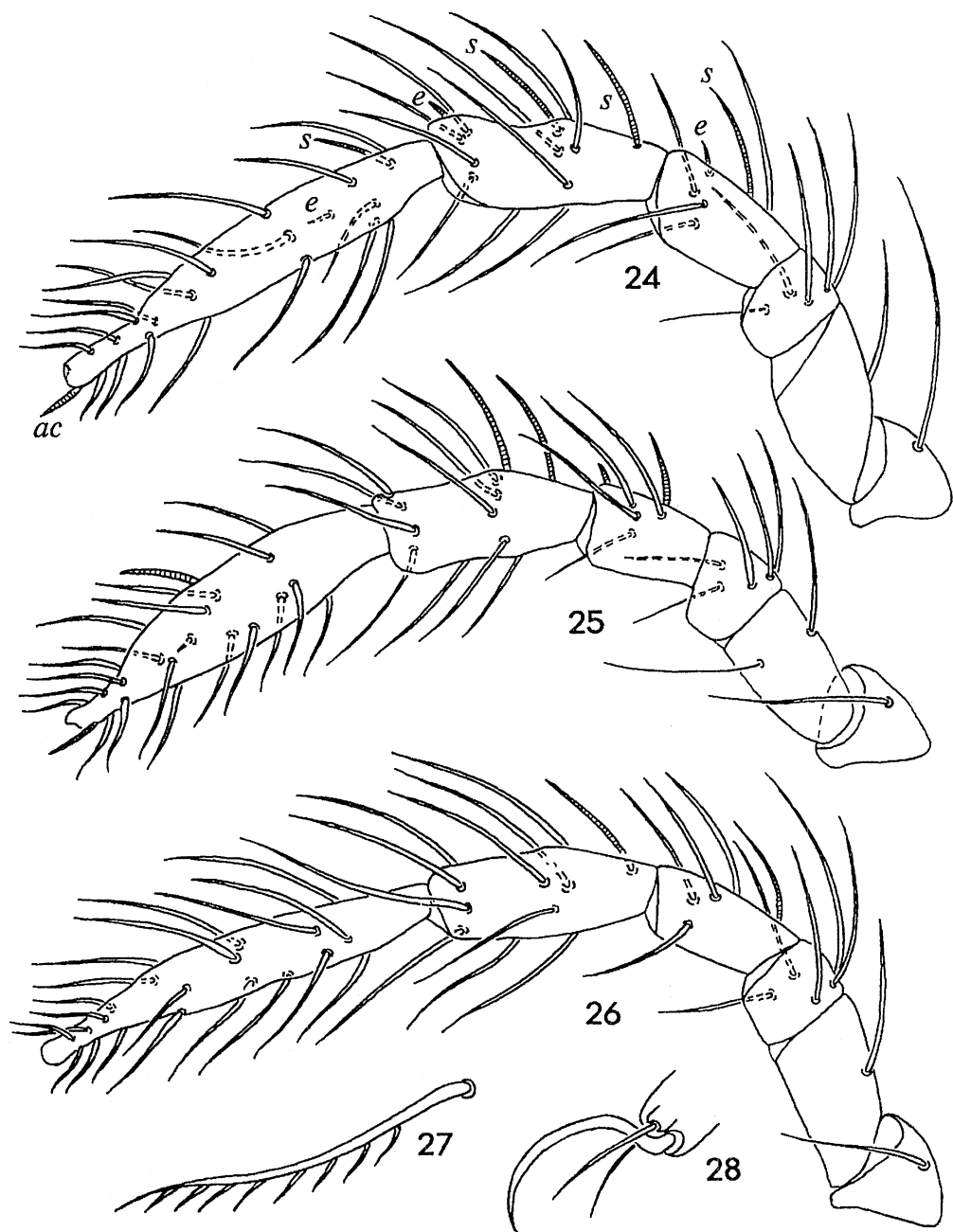


Figs 18-23. *Thyas magadanensis* sp. n., larva: 18-20, anal plate; 21, capitulum, ventral view; 22, chelicera; 23, palp.

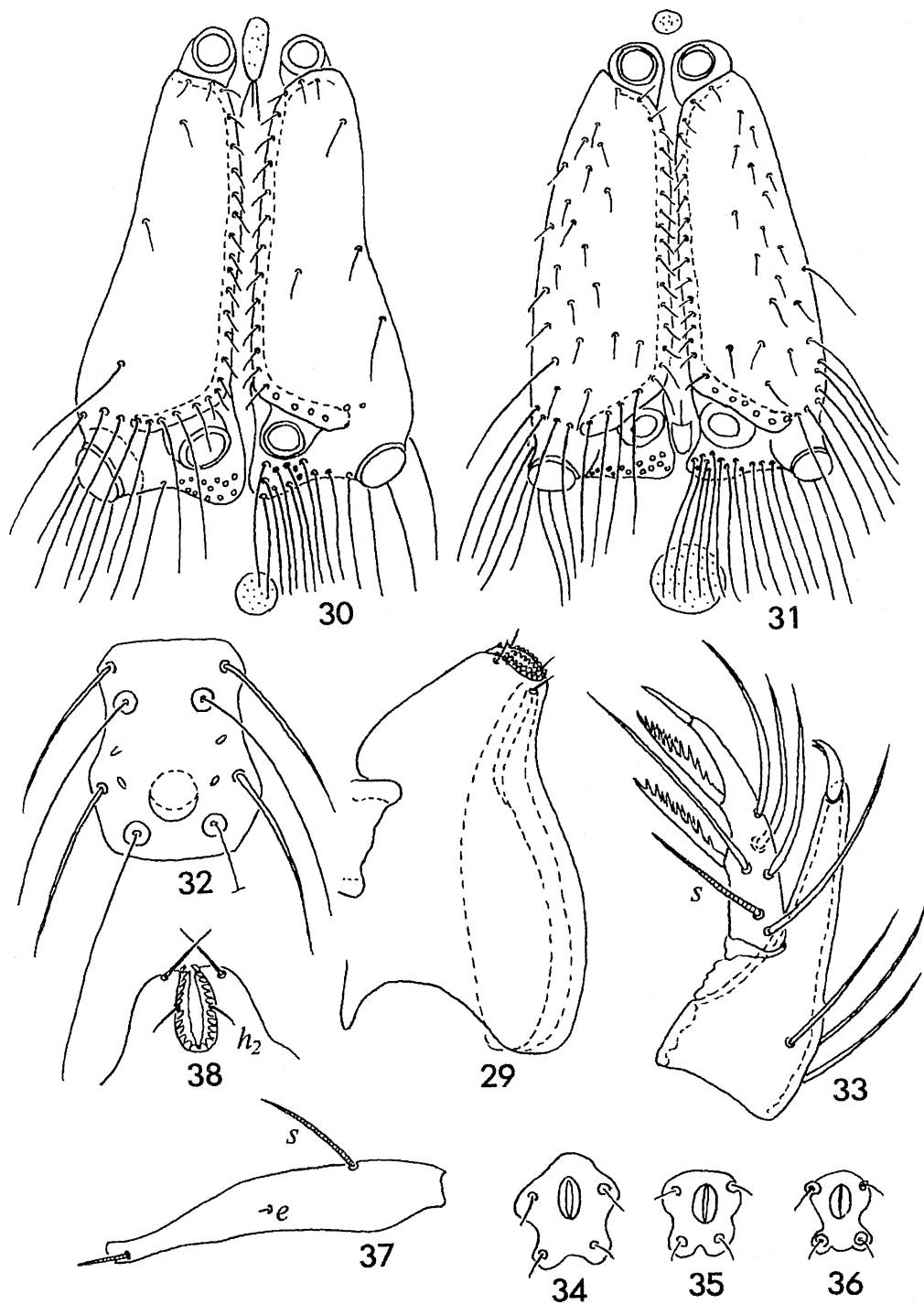
310-350, 290-310; II: L = 120-130, 195-245, 185-230, 300-365, 405-465, 365-390; III: L = 120-130, 185-215, 180-215, 300-365, 405-455, 365-390; IV: L = 225-295, 245-275, 250-300, 445-520, 510-570, 405-440.

Larva (Figs 15-28). Colour red. Dorsal plate small (Fig. 15); its anterior and posterior edges straight or weakly convex; sides with small grooves. Dorsal plate with 4 pairs of setae: Fch, Fp, Vi, Oi. Setae Fch and Oi simple, 1.0-1.2 times as long as dorsal plate. Trichobothria Fp and Oi very long, 1.5-1.8 times as long as dorsal plate. Other dorsal setae rather stout and nearly equal in length.

Median eye weakly convex, not high. Lateral eyes widely separated. All coxae of legs isolated from each other (Fig. 16). Posterior edge of coxa I with 2 setae: medial and lateral. Coxae II-III with one seta each. Urstigmata situated between coxae I-II slightly lateral to their middle. Urstigmata disc-shaped, each on a cylindrical base (Fig. 17). Posterior part of abdomen with 4 pairs of setae and anal plate bearing 2 pairs of microsetae. Ventral setae appreciably shorter and thinner than dorsal ones. Shape of anal plates very variable (Figs 18-20), most often rounded or oval. Length of anal plate equal



Figs 24-28. *Thyas magadanensis* sp. n., larva: 24, leg I; 25, leg II; 26, leg III; 27, pectinate seta; 28, claws.



Figs 29-38. *Thyas bruzelii* (29-30, female; 31, male; 32-38, larva): 29, capitulum, lateral view; 30-31, genital organ; 32, dorsal plate; 33, tibia and tarsus of palp; 34-36, anal plate; 37, tarsus of leg II (simple setae not shown); 38, anterior part of capitulum.

to or less than its width. Capitulum wide (Fig. 21). Mouth opening on ventral side of rostrum. Posterior setae (h_2) half as long as anterior and placed at the level of terminal part of mouth opening. Basal segment of chelicera large, with convex dorsal edge (Fig. 22). Mobile segment of chelicera with 2 fine teeth. Shape, number and arrangement of setae on segments of palp as in Fig. 23. Tibia with long dorsodistal process, bearing a short, thick, curved, twin-cone thorn. Tarsus straight, with short proximal solenidion. All legs (Figs 24-26) consisting of 6 free segments. Total number of setae on segments of legs: I – 1-2-5-6 (1s, 1e) – 13 (2s, 1e) – 22 (1s, 1e, 1ac); II – 1-2-5-6 (1s, 1e) – 12 (2s) – 22 (1s, 1e, 1ac); III – 1-1-5-5 (1s) – 11 (1s) – 20. (In brackets: number of solenidions, eupathids and acanthoids). On tarsus I, solenidion and eupathid placed in proximal part of segment; on tarsus II, solenidion placed at the middle of segment, and eupathid in distal part of segment. Simple setae on segments of legs pectinate (Fig. 27). Tarsi of all legs with 3 claws (Fig. 28). Central claw large and crescent; lateral claws thin and short. Measurements, in μm . Dorsal plate: L = 70-75, W = 60-65; capitulum: L = 105-110; basal segment of chelicera: L = 90-100; claw of chelicera: L = 25; palpal segments dorsally: L = 15, 40-50, 28-32, 45-52, 35-40; segments of legs, I: L = 35-40, 60-65, 28-32, 55-65, 85-90, 140-145; II: L = 35-40, 55-60, 25, 45-50, 80, 140-145; III: L = 40-45, 60-70, 25-30, 50-55, 85-90, 145-155.

Note. The duration of the embryonic period at room temperature was 10-12 days.

Comparison. *Thyas magadanensis* sp. n. is similar to *T. bruzelii* Lundblad, 1926. Lundblad (1926, 1927) described the structure of *T. bruzelii* female, Sokolow (1940) described its male, Wainstein (1980) gave the information on the larva. The examination of adult mites and larvae of *T. bruzelii* (Yaroslavl population), and the analysis of literary data have shown that the species differ distinctly in the structure of these stages. The adult mites of *T. magadanensis* are characterized by the larger size of body, capitulum, chelicera, palp, genital flaps and legs, compared with *T. bruzelii*.

Measurements (in μm) of *T. bruzelii*. Female (Figs 29-30). Body: L = 1385-1710; capitulum: L = 310-385; genital flaps: L = 270-285, W = 120-130; basal segment of chelicera: L = 300-325; claw of chelicera: L = 145-165; palpal segments dorsally: L = 65-80, 130-140, 95-105, 185-210, 35-40; seg-

ments of legs, I: L = 95-110, 170-190, 165-180, 245-260, 260-285, 260-280; II: L = 90-105, 170-190, 165-180, 260-295, 350-375, 325-340; III: L = 95-115, 160-180, 155-180, 260-300, 350-390, 340-400; IV: L = 200-220, 195-245, 225-260, 405-450, 440-480, 365-400.

Male (Fig. 31). Body: L = 895-1470; capitulum: L = 285-295; genital flaps: L = 250-285, W = 90-105; basal segment of chelicera: L = 240-275; claw of chelicera: L = 120-145; palpal segments dorsally: L = 57-80, 105-130, 80-105, 160-205, 30-40; segments of legs, I: L = 80-105, 45-180, 130-180, 180-230, 220-270, 210-250; II: L = 80-100, 140-190, 120-165, 210-280, 260-350, 250-325; III: L = 80-105, 135-180, 120-155, 185-270, 260-350, 260-325; IV: L = 180-235, 180-220, 180-230, 310-390, 335-430, 290-375.

The rostrum of adult mite of *T. bruzelii* (Fig. 29) is noticeably shorter, the palp is less slender. The genital flaps (Figs 30-31) are of other proportions, with different set of setae and their arrangement. The larva of *T. bruzelii* has high medial eye and shorter setae on dorsal plate (Fig. 32); tarsus of palp (Fig. 33) is appreciably curved at the distal end, with long solenidion. Anal plate (Figs 34-36) is usually longitudinal. Solenidion of tarsus II is situated in the proximal part of segment at 1/3-1/4 of its length from the base (Fig. 37); the setae h_2 are placed at the level of the middle of the mouth opening (Fig. 38).

References

- Lundblad, O. 1926. Neue Hydracarinene aus Schweden. V-VI. Vorläufige Mitteilung. *Ent. Tidskr.*, 47 (4): 205-208.
- Lundblad, O. 1927. Die Hydracarinene Schwedens. I. Beitrag zur Systematik, Embryologie, Ökologie und Verbreitungsgeschichte der schwedischen Arten. *Zool. Bidrag Uppsala*, 11: 185-540.
- Sokolow, I.I. 1940. Hydracarina – the aquatic mites. Part I – Hydrarachnidae. *Fauna SSSR* (nov. ser., No. 20), *Paukoobraznye* [Arachnoidea], vol. 5, No. 2. 24 + 511 p. Moscow-Leningrad. (In Russian).
- Tuzovskij, P.V. 1975. The nymph of water mite *Parathyas thoracata* (Piersig, 1896) (Hydraphantoidea, Acariformes). *Biol. Vnutr. Vod Inform. Byull.*, 27: 31-35. (In Russian).
- Tuzovskij, P.V. 1987. *Morfologiya i postembryonal'noye razvitiye vodyanykh kleshchei* [Morphology and postembryonic development of water mites]. 172 p. Moscow: Nauka. (In Russian).
- Wainstein, B.A. 1980. *Opredelitel' lichinok vodyanykh kleshchei* [Key to larvae of water mites]. 238 p. Leningrad: Nauka. (In Russian).

Received 26 November 1998