



## Description of a new water mite species of the genus *Thyopsis* (Piersig, 1899) (Acari, Hydrachnidia: Hydryphantidae) from Kazakhstan

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The world fauna of the genus *Thyopsis* Piersig, 1899 currently includes the following species: *Th. amarginata* Habeeb, 1963, *Th. cancellata* (Piersig, 1899), *Th. cancellatomima* Bader, 1983, *Th. majorella* Habeeb, 1975, *Th. oezkani* Bader, 1983 and *Th. rothae* Oezkan, 1982 (Bader 1983). However, the taxonomic status of *Th. cancellatomima* remains not clear, Gerecke & Schwoerbel (1992) regarded this species as a junior synonym of *Th. cancellata*.

This paper gives the description of a further species of the genus, based on material collected by V. Stolbov in 2019 in running waters of the Aksu-Zhabagly Nature Reserve of the Republic of Kazakhstan. The material was sampled with a common hand net with 250 µm mesh size and fixed in 75 % ethanol. All specimens were dissected and slide mounted in Hoyer's medium.

Idiosomal setae are named according to Tuzovskij [1987]: *Fch*—frontales chelicerae, *Fp*—frontales pedipalporum, *Vi*—verticales internae, *Ve*—verticales externae, *Oi*—occipitales internae, *Oe*—occipitales externae, *Hi*—humerales internae, *He*—humerales externae, *Hv*—humerales ventralia, *Sci*—scapulars internae, *Sce*—scapulars externae, *Li*—lumbales internae, *Le*—lumbales externae, *Si*—sacrales internae, *Se*—sacrales externae, *Ci*—caudales internae, *Pi*—praeanales internae, *Pe*—praeanales externae. Setae *Fp* and *Oi* are trichobothria and not associated with glandularia, others idiosomal setae associated with glandularia.

The following abbreviations are used: ac-1- ac-3—genital acetabula; D, diameter; dc.1–5, dorsocentralia 1–5; dl.1–4, dorsolateralia 1–4; L, length; n = number of specimens measured; P-1–5, pedipalp segments (trochanter, femur, genu, tibia and tarsus); W—width; I-IV-Leg-1–6, first leg, segments 1–5 (trochanter, basifemur, telofemur, genu, tibia and tarsus) i.e. III-Leg-3 = genu of third leg. All measurements are given in micrometers (µm); length of appendage segments is given as dorsal length. The type material is deposited in the collection of the Papanin Institute for Biology of Inland Waters (Borok, Russia).

### Results

#### Family Hydryphantidae Piersig, 1896

#### Subfamily Euthyadinae K. Viets, 1931

#### Genus *Thyopsis* Piersig, 1899

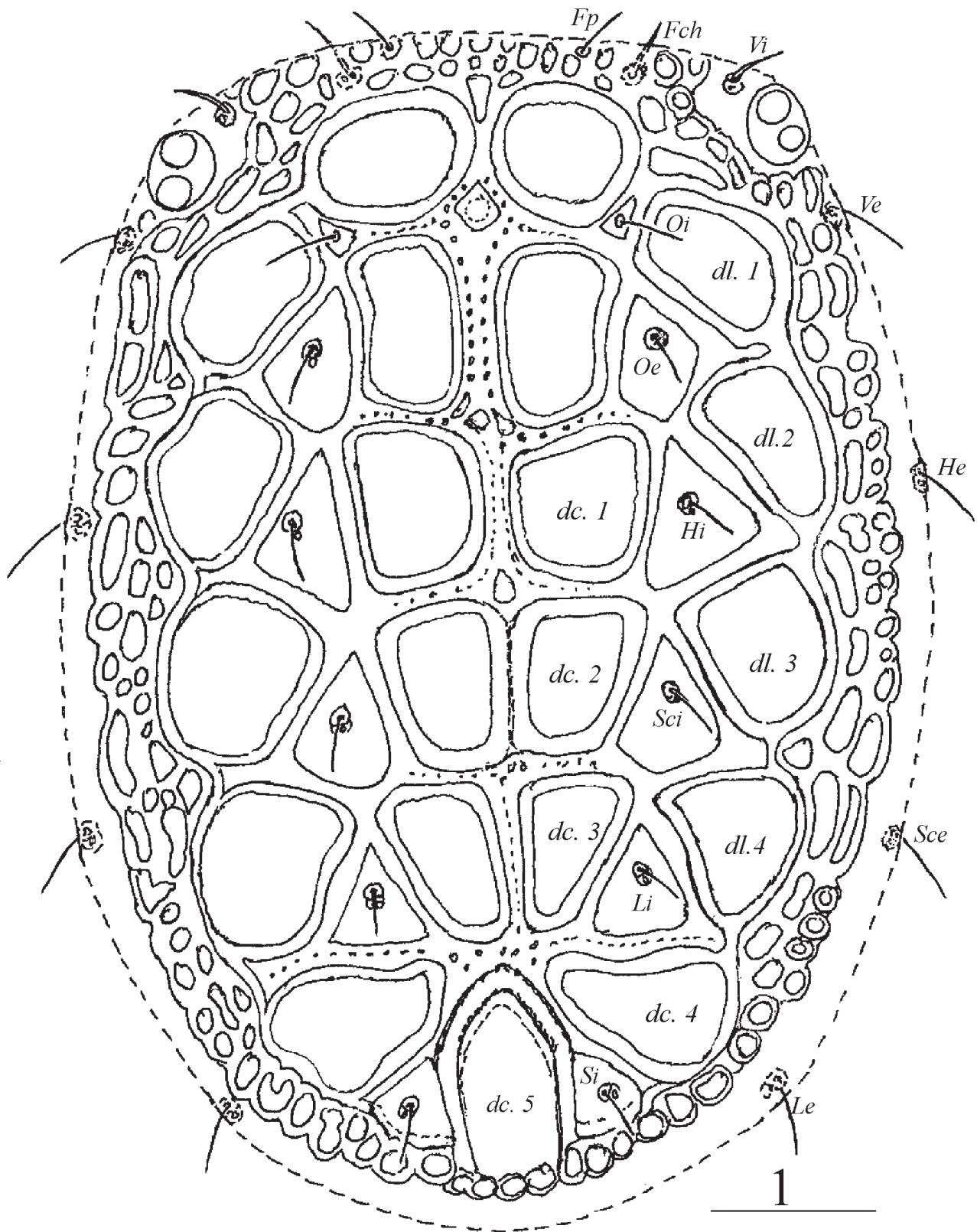
#### *Thyopsis gerecke* sp. n.

(Figs 1–11)

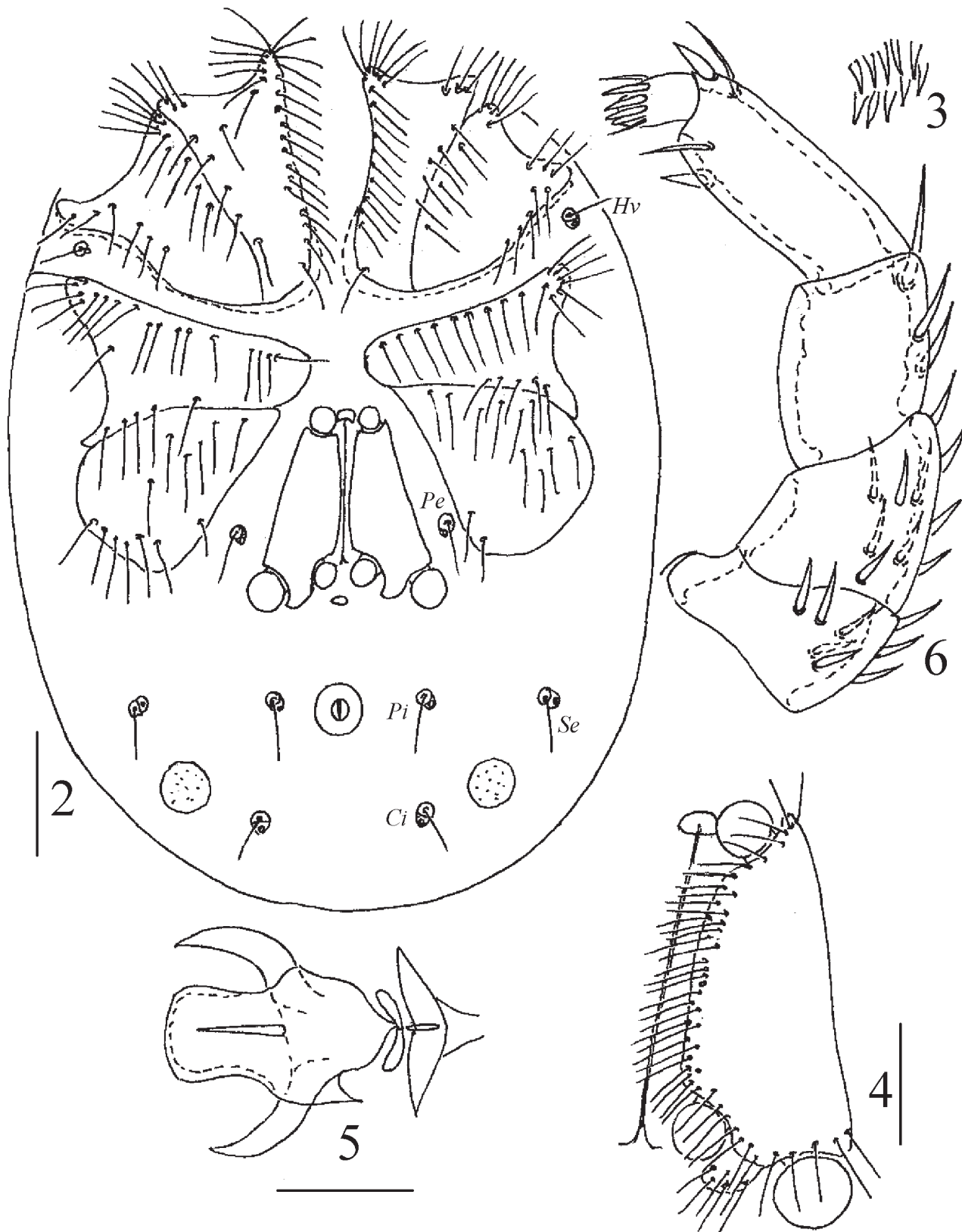
**Type series.** Holotype: male, slide 9941, Asia, Kazakhstan, Turkestan Province, Tyulkubaskiy District, Aksu-Zhabagly Nature Reserve, Karalma stream, 42°27'53.2"N 70°34'53.0"E, 1316 m, depth 20 cm, substrates: stones, mosses, 12.09.2019, leg. V. Stolbov. Paratype: 1 male, same locality and data as holotype. Additional material: 1 male, Aksu-Zhabagly Nature Reserve, Taldybulak stream, 42°24'04.4"N 70°28'13.7"E, 1450 m, depth 20 cm, substrates: stones, mosses, 12.09.2019, leg. V. Stolbov.

**Diagnosis.** Dorsocentral plates fused into a reticulated dorsal shield in which individual plates are distinct, and surrounded by a secondary reticulation, dorsocentral plates (dc. 5) completely fused to each other, capitulum with very short

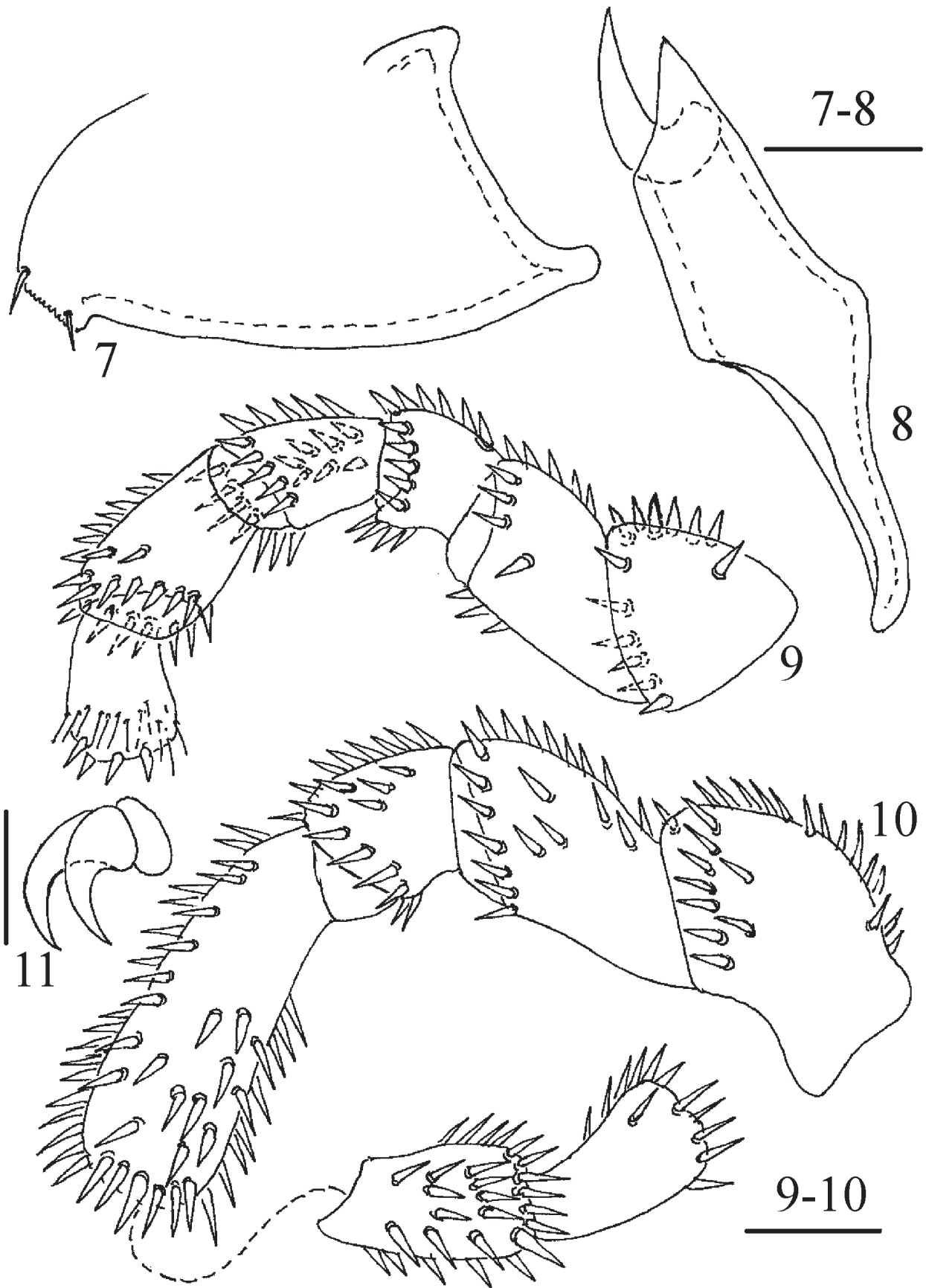
rostrum; pedipalp stout, P-4 proximal distoventral seta short and thick, distal seta comparatively long and thin; posterior genital acetabula larger than ac-1 and ac-2 on each side, genital field with 38–50 pairs of setae; tarsi of all legs shorter than I-IV-Leg-5 and without lateral setae.



FIGURES 1. *Thyopsis gereckeii* sp. n., male: 1, dorsal view. Scale bar: 200µm.



**FIGURES 4–6.** *Thyopsis gereckeii* sp.n., male: 2, ventral view; 3, fragment of integument; 4, left half of genital field; 5, ejaculatory complex; 6, pedipalp. Scale bars: 2 = 200µm, 3, 5 = 50 µm; 4, 6 = 100 µm.



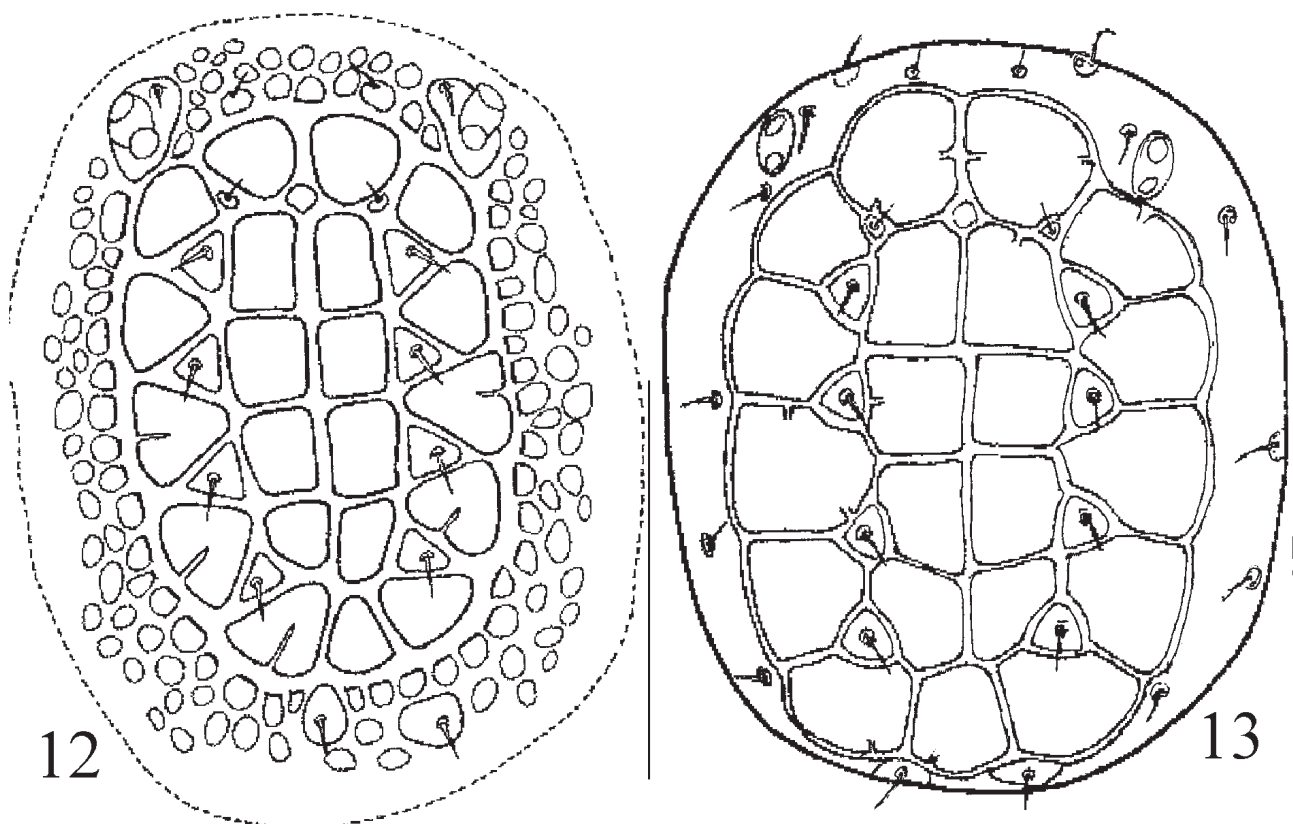
FIGURES 7–11. *Thyopsis gereckei* sp.n., male: 7, capitulum; 8, chelicera; 9, leg I; 10, leg IV; 11, claws of leg IV. Scale bars: 7–8, 9–10 = 100  $\mu$ m, 11 = 50  $\mu$ m.

**Description. Male.** All dorsalia greatly expanded and fused into a reticulated dorsal shield in which individual plates are distinct, with only small, more or less triangular areas surrounded the glandularia (Fig. 1). Praefrontale oval and a little wider than long; postfrontale subrectangular and longer than wide; dorsocentral plates (dc.1 and dc. 3) slightly separated, dc.2 contiguous but not fused to each other, dc. 4 well separated and narrowed medially, dc.5 completely fused to each other and much longer than wide. Dorsal shield surrounded by a secondary reticulation and bearing trichobothria *Oi*, setae *Oe*, *Hi*, *Sci*, *Li* and *Si*. Setae *Fch*, *Fp* and *Vi* located in the zone of secondary reticulation, and *Ve*, *He*, *Sc*e and *Le* situated on the interscutal membrane on each side. Median eye small and unpigmented, lateral eyes in capsules, eye lenses separated and surrounded by extensions of dorsal shield.

Coxal plates in four groups (Fig. 2). Anterior coxal groups without apodemes. Coxal plate III with a nose-shaped medial projection extending beyond medial margin of coxal plate IV. Number of coxal setae variable: Cx-I with 25–30, Cx-II with 17–21, Cx-III with 18–22, Cx-IV with 8–13 rather long, thin setae. Integument with pointed papillae (Fig. 3). Genital field with three pairs of acetabula, ac. 3 large than both other acetabula on each side, ac. 2 and ac. 3 lying nearly in a transverse line. Genital flap elongate (L/W ratio 2.5–2.7) and bearing 38–50 of setae on each side, their anterior margin straight or oblique, gonopore nearly as long as flaps (Fig. 4). Ejaculatory complex proximal chamber relative large, proximal arms massive, strongly curved, broadest basally, tapering gradually to apex, distal arms slightly developed (Fig. 5). Excretory pore surrounded by a sclerotized ring and located between setae *Pi*. Genital field and excretory pore well separated. Pregenital sclerite not developed, postgenital sclerite very small. Pedipalp stout (Fig.6): P-1 relatively short with five to eight short subequal setae, P-2 ventral margin straight, with 9–10 short subequal setae; P-3 a little shorter than P-2, with two short unequal dorsoproximal setae and one comparatively long dorsodistal seta; P-4 ventral margin with two unequal distal setae: proximal from them short, thick, distal seta comparatively long and thin, dorsodistal peg-like seta shorter and thicker than proximal one.

Ventral margin of capitulum slightly convex, rostrum very short (Fig. 7). Chelicera (Fig. 8) rather slender, basal segment large with dorsal hump near middle of segment; chela short, length basal segment/chela ratio 2.8–3.2.

Legs very stout, densely covered with strong setae. Shape and arrangement of setae on legs I and IV as shown in Figs 9–10, respectively. I-IV-Leg-6 shorter than I-IV-Leg-5 and without lateral setae; IV-Leg-4 much longer than IV-Leg-5. Leg claws simple, hook-like (Fig. 11).



**FIGURES 12–13.** *Thyopsis* (from Bader, 1983, modified): 12, *Th. maderensis* Lundblad, 1941, male, dorsal view; 13, *Th. rothae* Oezkan, 1982, male, dorsal view.

Measurements (n=3). Dorsal shield L 1250–1560, W 900–1035; genital flap L 285–315, W 110–135; capitulum L 285–310, rostrum L 20–25; cheliceral segments: base L 275–285, chela L 85–100; acetabula (ac. 1–3) D: 35–55, 35–50, 60–65; ejaculatory complex L 150; pedipalp segments (P-1-5) L: 50–55, 130–150, 75–88, 135–155, 35–38; leg segments L: I-Leg-1-6: 120–125, 175–200, 85–100, 125–135, 150–165, 120–125; II-Leg-1-6: 125–135, 185–210, 100–125, 150–185, 185–200, 125–150; III-Leg-1-6: 135–175, 150–175, 100–115, 160–175, 175–190, 125–140; IV-Leg-1-6: 175–235, 185–200, 125–150, 310–325, 175–200, 125–140.

**Female.** Unknown.

**Remarks.** The present species is similar to *Th. maderensis* and *Th. rothae* in the structure of the dorsal shield in which individual plates are distinct. Differences between the *Th. gerecke* sp. n. and *Th. maderensis* are found in the following characters (character states of *Th. maderensis* are given in parentheses, data from Lundblad 1942 and Bader 1983): dorsal shield with secondary reticulation, Fig. 1 (without secondary reticulation, but having three to four rows of distinctly developed meshes, Fig. 12), glandularia and setae *Si* located in the zone of primary reticulation (posterior to the zone of primary reticulation). *Thyopsis rothae* differs in the dorsal shield without secondary reticulation, dc. 5 not narrowed medially, dc. 5 and dl. 4 subequal in length (Fig. 13), capitulum with rather long rostrum (Bader 1983).

**Etymology.** The species is named after Prof. Dr Reinhard Gerecke (Germany).

**Habitat.** Running waters.

**Distribution.** Asia, Kazakhstan: Turkestan Province.

## Acknowledgements

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