

A contribution to the knowledge of the harvestman fauna of the Zakataly State Reserve, Azerbaijan (Arachnida: Opiliones)

К познанию фауны сенокосцев Закатальского государственного заповедника, Азербайджан (Arachnida: Opiliones)

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KEY WORDS: Fauna, harvestmen, distribution, description, new species Azerbaijan, Zakataly.

КЛЮЧЕВЫЕ СЛОВА: Фауна, сенокосцы, распространение, описание, Азербайджан, Закаталы.

ABSTRACT. Eight opilionid species of the families Troglulidae, Nemastomatidae and Phalangidae occurring in the Zakataly State Reserve are reviewed. *Rilaena zakatalica* sp.n. is described and three species: *Histicostoma caucasicum* (Redikorzev, 1936), *Nemastoma tenebricosum* (Redikorzev, 1936) and *Paranemastoma kalischevskyi* (Roewer, 1951), are recorded from Azerbaijan for the first time.

РЕЗЮМЕ. В работе приведен фаунистический обзор 8 видов сенокосцев из семейств Troglulidae, Nemastomatidae, Phalangidae, отмеченных из Закатальского заповедника (северный Азербайджан). Описан новый вид *Rilaena zakatalica* sp.n. Три вида — *Histicostoma caucasicum* (Redikorzev, 1936), *Nemastoma tenebricosum* (Redikorzev, 1936), *Paranemastoma kalischevskyi* (Roewer, 1951), отмечаются впервые для фауны Азербайджана.

Introduction

The Zakataly State Reserve was established in 1929 to protect and facilitate study of the flora and fauna of the southern slope of Caucasus Major. The Reserve is situated in the territories of the Zakataly and Belokan districts of Azerbaijan (Map 1). Its vegetation can be subdivided into two main types: mountain forests and mountain meadows, which cover 67% and 28% of the reserve's territory respectively. Hitherto, the opilionid fauna of this part of the Caucasus was unstudied. This paper summarizes the first data on the Opiliones fauna for the Zakataly Reserve and presents data on eight species, in seven genera, from three families. Three species are new records for Azerbaijan and *Rilaena zakatalica* sp.n. is described as new to science.

Type, collected and studied specimens are shared between the following depositories: ZIN — Zoological

Institute of the Russian Academy of Science, St.-Petersburg, Russia (V.A. Krivokhatski); IZB (+ a catalogue number) — Zoological Institute of the National Academy of Sciences of Azerbaijan, Baku (N.Yu. Snegovaya); ISEA — Siberian Zoological Museum, Institute for Systematics and Ecology of Animals, Novosibirsk, Russia (G.N. Azarkina).

Names of collectors are abbreviated as follows: Dr. Halid Aliyev (H.A.) and the authors (N.S. and A.C.). Other abbreviations used in the text and tables are: ZSR — Zakataly State Reserve, Fm — femur, Pt — patella, Tb — tibia, Mt — metatarsus, Ta — tarsus. "Clypeus" is defined as the space between the ocularium and the anterior margin of carapace.

Survey of species

Family TROGULIDAE Sundevall, 1833

Platybessobius caucasicus Šilhavý, 1966
Figs 1–9.

Platybessobius caucasicus Šilhavý, 1966: 151–153, figs 1–13.
Platybessobius caucasicus: Starega, 1978: 199; Chevrizov, 1979: 8, figs 8–13.

Calathocratus africanus: Roewer, 1950: 54–55; Redikorzev, 1936: 1; Starega, 1966: 389–390, figs 1–2.

MATERIAL. AZERBAIJAN: 1 ♂ (ISEA), ZSR, - 15 km NNE of Zakataly, between I and II cordons, mountain slope along the right bank of River Katekhchai, - 800 m a.s.l., [41°44'51.6"N, 46°36'19.8"E], 20.06.2003, A.C.

DESCRIPTION. MALE. Measurements. Body: length 4.44; width 1.53. Hood length 0.29. 'Hood' width 0.42. Chelicera: basal segment 0.81; distal segment 0.48; length of forceps 0.29. Penis: length 1.73; width at base: 0.18; length of glans: 0.22. Length of palp and legs:



Map 1. Position of the Zakataly State Reserve.

Карта 1. Местоположение Закатальского государственного заповедника.

	Fm	Pt	Tb	Mt	Ta	Total
Palp	0.40	0.13	0.23	-	0.12	0.88
Legs						
I	0.78	0.42	0.52	0.60	0.20	2.52
II	1.88	0.57	1.02	1.23	0.62	5.23
III	0.86	0.42	0.61	0.77	0.24	2.90
IV	1.32	0.60	0.93	1.04	0.32	4.21

Body (Fig. 1) small and robust, oval shaped, elongated. Body integument papillose. Dorsal surface of carapace and abdominal tergites fused together forming a continuous shield. Odoriferous glands of carapace and supra-cheliceral lamella are absent. The anterior edge of the carapace forms a 'hood', a long two-branched outgrowth possessing integumental projections on both sides. The 'hood' overhangs the chelicerae and palps and hides them from dorsal view. Eyes are slightly raised (without ocularium) and situated at the base of the "hood".

Chelicera small (Fig. 3). Basal segment long, with rare setae. Distal segment of typical structure, with 1–2 tubercles in the middle of its dorsal surface.

Palp relatively small and short (Fig. 2), basally covered with setae. Patella and tarsus small and equal in length. Tarsus sharpened to its top, without a claw.

Legs. I pair short and somewhat swollen. Femora, patellae, tibiae and metatarsi of all legs are almost completely covered with hook-shaped integument projections. Tarsi of all legs are not polynomial. Number of tarsal segments: I — 1, II — 1, III — 2, IV — 2. Each tarsus has a relatively long claw (Figs 4–7).

Penis (Fig. 8–9). Corpus thin along the whole length. Stylus, glans and corpus are fused into a single structure. Glans (Fig. 9) covered with thin, long thorns.

COLORATION. The body and legs of living specimens are covered with a continuous thin layer of sand grains and small-sized particles giving the general body colour a light, sandy-ochre appearance; only palps, chelicera and tarsi of legs remain free of this cover.

The integument is light brown, with small scattered black spots. Chelicera: basal segment ochre-brown, distal segment black-brown. Palps light yellow-ochre. Legs dark brown or black-brown.

DISTRIBUTION. The Caucasus: Russia: Krasnodar Region [Šilhavý, 1966; Starega, 1966, 1978; Chevrizov, 1979]; Georgia: Gelati (near Kutaisi) [Starega, 1966, 1978]; Azerbaijan: Lenkoran [Roewer, 1923; Redikorzev, 1936; Starega, 1978; Snegovaya, 1999], Zakataly [present data].

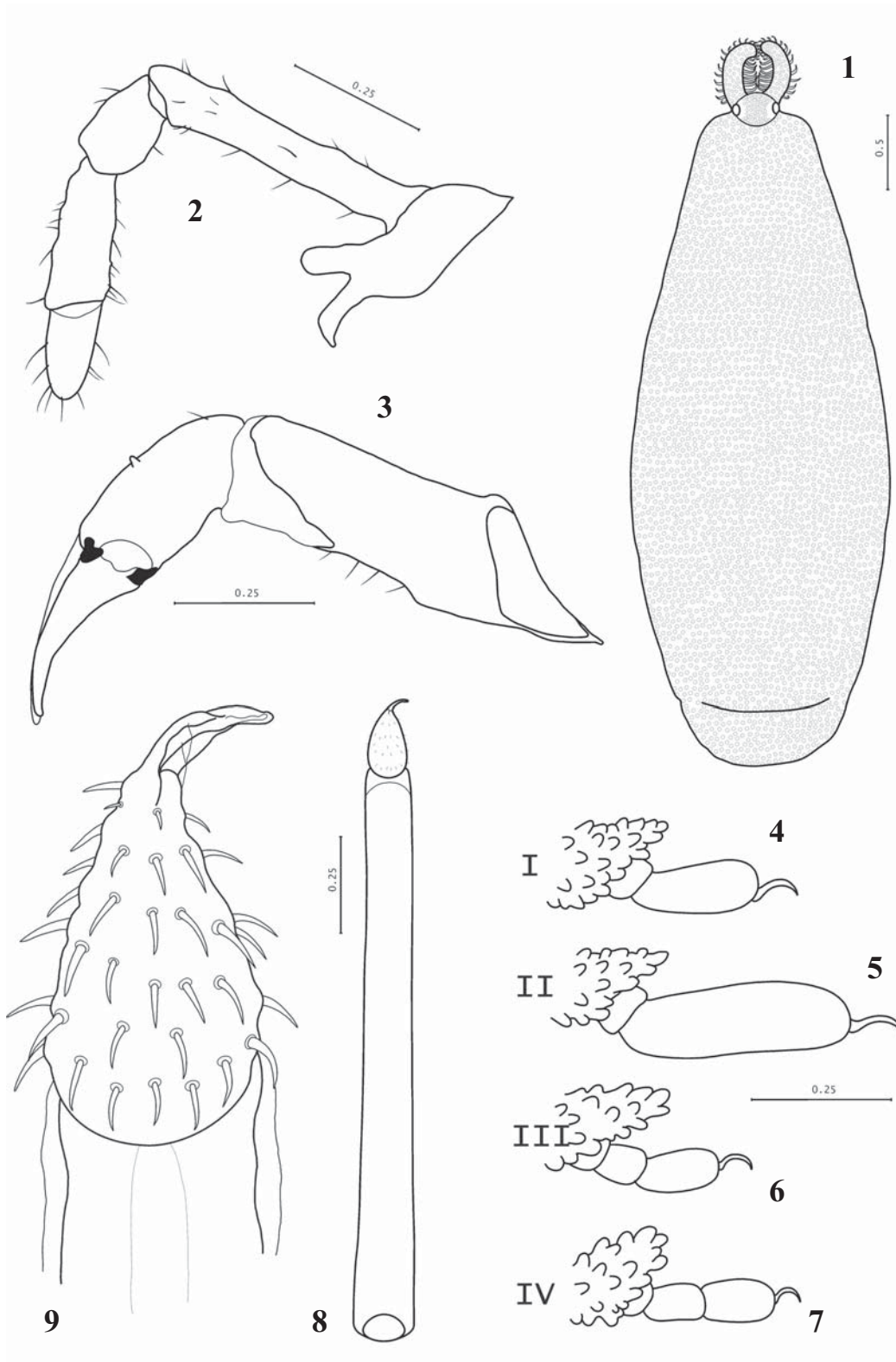
HABITAT. The species was collected in the litter of a beech forest.

Trogulus rossicus Šilhavý, 1968 Figs 10–13.

Trogulus rossicus Šilhavý, 1968a: 25–27, figs 1–7.
Trogulus rossicus: Starega, 1978: 199; Chevrizov, 1979: 8, figs 20–23.

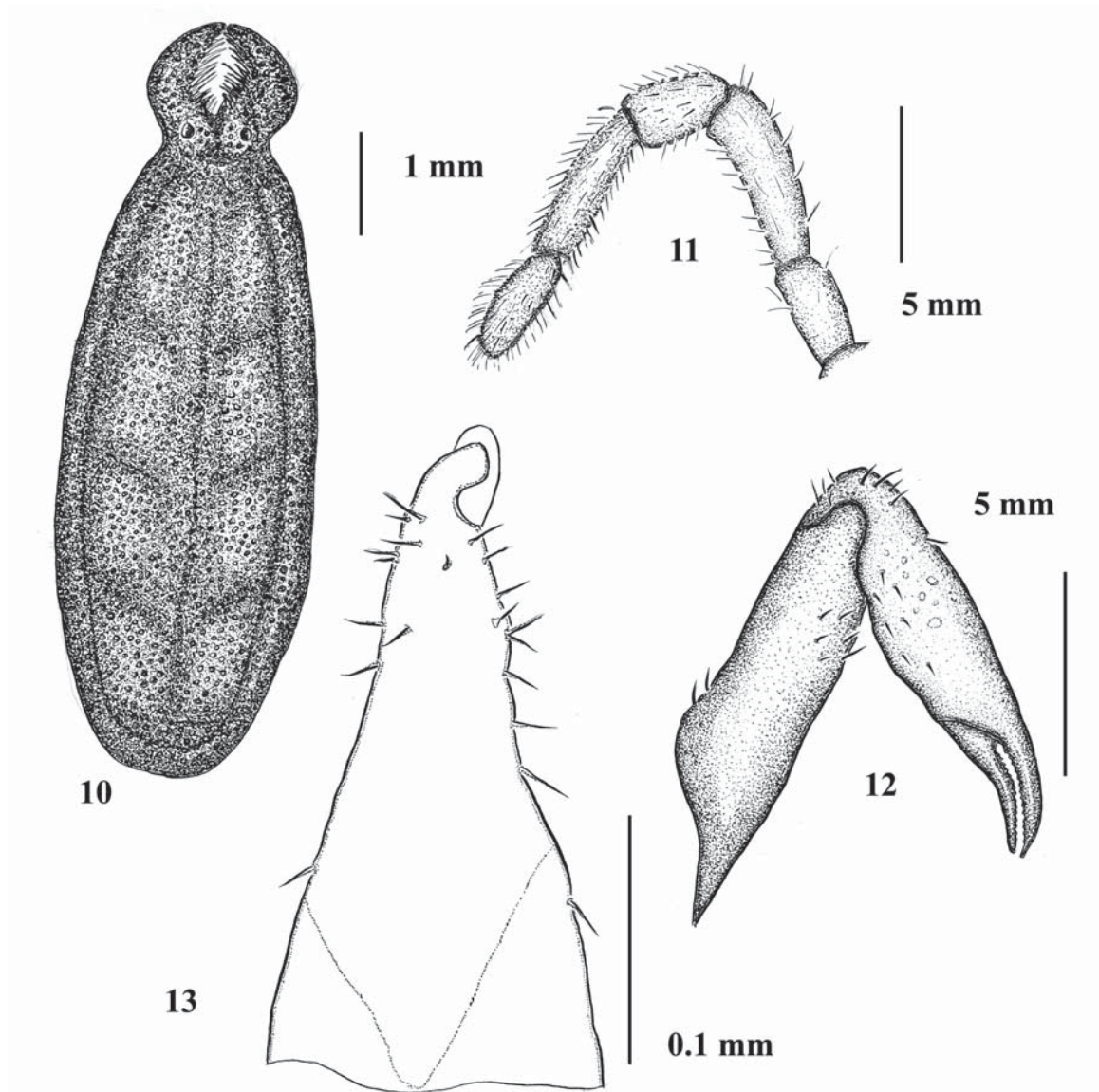
Trogulus nepaeformis: Starega, 1966: 388–389.

Trogulus aquaticus: Roewer, 1950: 55; Redikorzev, 1936: 1; Šilhavý, 1966: 151.



Figs 1–9. *Platybessobius caucasicus* (Šilhavý, 1966), ♂: 1 — body, dorsal view; 2 — palp lateral view; 3 — chelicera, lateral view; 4 — tarsus I, lateral view; 5 — tarsus II, lateral view; 6 — tarsus III, lateral view; 7 — tarsus IV, lateral view; 8 — penis, lateral view; 9 — glans of penis, dorsal view. Scales: 0.5 mm (1, 8), 0.25 mm (2–7).

Рис. 1–9. *Platybessobius caucasicus* (Šilhavý, 1966), ♂: 1 — тело, дорсально; 2 — пальпа, латерально; 3 — хелицера, латерально; 4 — лапка I, латерально; 5 — лапка II, латерально; 6 — лапка III, латерально; 7 — лапка IV, латерально; 8 — пенис, латерально; 9 — головка пениса, дорсально. Масштаб: 0,5 мм (1, 8), 0,25 мм (2–7).



Figs 10–13. *Troglus rossicus* Šilhavý, 1968, ♂: 10 — body, dorsal view; 11 — palp, lateral view; 12 — chelicerae, lateral view; 13 — glans of penis, dorsal view. Scales: 1.0 mm (10), 5.0 mm (11, 12), 0.1 mm (13).

Рис. 10–13. *Troglus rossicus* Šilhavý, 1968, ♂: 10 — тело, дорсально; 11 — пальпа, латерально; 12 — хелицера, латерально; 13 — головка пениса, дорсально. Масштаб: 1,0 мм (10), 5,0 мм (11, 12), 0,1 мм (13).

MATERIAL. AZERBAIJAN: 1 ♂, 1 juv. (IZB 139, 157), ZSR, - 15 km NNE of Zakataly, between I and II cordon, mountain slope along right bank of River Katekhchai, - 800 m a.s.l., [41°44'51.6"N, 46°36'19.8"E], 23.06.2003, N.S.; 1 ♂, 1 ♀, 2 juv. (IZB 144), same locality, 24.06.2003, N.S.; 1 ♂ (IZB 160), ZSR, II and III cordon, 23.06.2003, N.S.

DISTRIBUTION. This species has been recorded from the Caucasus: Russia (Krasnodar and Stavropol Territory) [Šilhavý, 1966, 1968; Starega, 1966, 1978; Roewer, 1923, 1950; Redikorzev, 1936; Chevrizov, 1979; Snegovaya, 1999] and Azerbaijan (Zakataly) [present data].

HABITAT. The species was collected in the litter of a mixed forest.

NOTES. For description and distribution of this species see Šilhavý [1968].

Family NEMASTOMATIDAE Simon, 1872

Histicostoma caucasicum (Redikorzev, 1936)

Figs 14–18.

Nemastoma caucasicum Redikorzev, 1936: 37, figs 7–8, 14.

Nemastoma caucasicum: Roewer, 1951; 135, fig. 65.

Histicostoma caucasicum: Starega, 1966: 394; Starega, 1978: 201.

MATERIAL. AZERBAIJAN: 10 ♂♂, 10 ♀♀ (IZB 140, 154, 159) & 12 ♂♂, 2 ♀♀, 5 juv. (ISEA), ZSR, - 15 km NNE from Zakataly, between I and II cordon, mountain slope along right bank of River Katekhchai, - 800 m a.s.l., [41°44'51.6", 46°36'19.8"E], 20–23.06.2003, N.S., H.A. & A.C.; 42 ♂♂, 41 ♀♀ (IZB 245), ZSR, same locality, 05.07.2004, N.S.; 1 ♀ (IZB 168) & 1 ♂, 2 ♀♀ (ISEA), ZSR, road to Rochugel Mountain, near III

cordon, 2100–2400 m a.s.l., [41°46'10.3"N, 46°36'13.0"E], 22.06.2003, N.S. & A.C.; 1 ♂, 2 ♀♀, 7 juv. (IZB 151), ZSR, I cordon, 24.06.2003, N.S. & H.A.; 29 ♂♂, 26 ♀♀ (IZB 251), ZSR, road to waterfall, 06.07.2004, N.S.

DISTRIBUTION. This species has repeatedly been reported from the Caucasus: Abkhazia [Redikorzev, 1936; Roewer, 1951; Mcheidze, 1964], Georgia [Starega, 1966, 1978], Adzharia [Starega, 1966, 1978] and Azerbaijan (Zakataly) [present data].

HABITAT. This species was collected from under stones and in litter.

DIAGNOSIS. *Histicostoma caucasicum* differs from others species of this genus in the number of tubules on the abdominal tergites (4 pairs in total).

DESCRIPTION. MALE. Measurements. Body: length 1.6; width 1.3. Chelicera: basal segment 0.5; distal segment 0.53; length of forceps 0.1. Penis: length 0.65; width at base: 0.04; length of glans: 0.03. Length (in mm) of palp and leg segments:

	Fm	Pa	Ti	Mt	Ta	Total
Palp	0.65	0.73	0.63	-	0.33	1.89
Legs						
I	0.36	0.38	0.73	0.43	0.33	2.23
II	1.7	0.5	1.2	2.58	2.08	8.06
III	0.85	0.38	0.65	1.08	1.15	4.11
IV	1.28	0.4	0.8	1.65	1.18	5.31

The male's body as in Fig. 14, shaped as a tetrahedron with rounded angles. Body integument papillose. No sharp borders between tergites. Dorsum with numerous small blunt tubercles, situated in groups as follows: on the carapace between chelicerae and legs I; between legs II and III; and on the distal edge of terminal abdominal tergites. Tergites II–V with a pair of high, cylindrical tubules inclined posteriorly. Tips of these tubules covered with aciculae.

Eye tubercle is very low and spherical, shifted forward to the edge of the carapace (half its diameter from the edge), with numerous small blunt tubercles.

Chelicerae are small, covered with hairs. Basal segment with low dorsal apophysis, or cheliceral gland (Fig. 16). Distal segment of typical structure.

Palps (Fig. 15) are short covered with setae and hairs. On top, ectal surface of the patella there is a large tooth, its tip is bent backwards. Femur and patella equal in length. Tarsus relatively long, almost equal in length to tibia. Tarsal claw absent.

Legs relatively long, II and III thinner and longer than I and IV. Coxae I–IV covered with small spherical tubercles, laterally each armed with a row of bifid tack-like tubercles. Femora, patellae and tibiae I and III somewhat swollen, spindle-shaped, covered with thin hairs. All legs almost totally covered with the aciculae. Femora I–IV with pseudosegments as follows: I — 2–3, II — 7–9, III — 2–5, IV — 6–7.

Penis small, thin, as in Figs 17–18.

FEMALE. Measurements. Body: length 2.2; width 1.4. Chelicera: basal segment 0.25; distal segment 0.53. Length (in mm) of palp and leg segments:

	Fm	Pa	Ti	Mt	Ta	Total
Palp	0.63	0.68	0.5	-	0.35	2.16
Legs						
I	0.75	0.38	0.65	1.15	0.96	3.89
II	1.88	0.53	1.28	2.53	1.55	7.77
III	0.8	0.43	0.63	1.4	1.05	4.31
IV	1.7	0.4	0.95	2.05	1.33	6.43

The female is similar to the male, but its body is more swollen and larger. It also differs in the following features: no cheliceral gland on the basal segment of chelicerae;

palps longer; no large tooth on the tip of the ectal surface of the patella.

COLORATION. Body black–brown. Carapace on each side behind the ocularium with an elongate silver spot. Legs ochre–brown. Palps ochre.

Nemastoma tenebricosum Redikorzev, 1936 Figs 19–23.

Nemastoma tenebricosum Redikorzev, 1936: 34, figs 1–2.

Nemastoma tenebricosum: Starega, 1978: 204; Roewer, 1951: 133.

MATERIAL. AZERBAIJAN: 3 ♂♂, 2 ♀♀ (IZB 142, 155) & 1 ♀ (ISEA), ZSR, ~ 15 km NNE of Zakataly, between I and II cordon, mountain slope along right bank of River Katekhchhai, ~ 800 m a.s.l., [41°44'51.6"N, 46°36'19.8"E], 23.06.2003, N.S., H.A. & A.C.; 2 ♂♂, 1 ♀ (IZB 244), same locality, 05.07.2004, N.S.; 3 ♂♂, 1 ♀ (IZB 158), ZSR, between II and III cordons, 23.06.2003, N.S., H.A.; 2 ♂♂ (ISEA), ZSR, road to Rochugel Mt., near III cordon, ~ 2100–2400 m a.s.l., [41°46'10.3"N, 46°36'13.0"E], 22.06.2003, A.C.; 1 ♂, 2 ♀♀ (IZB 252), ZSR, II cordon, near old Albanian church, 07.07.2004, N.S.

DESCRIPTION. MALE. Measurements. Body: length 1.6; width 1.0. Chelicera: basal segment 0.5; distal segment 0.55; length of forceps 0.5. Penis: length 1.6; width at base: 1.3; length of glans: 0.14. Length (in mm) of palp and leg segments:

	Fm	Pa	Ti	Mt	Ta	Total
Palp	0.6	0.6	0.45	-	0.33	1.98
Legs						
I	0.6	0.35	0.65	0.7	0.33	3.63
II	1.28	0.45	1.05	1.05	0.8	4.63
III	0.73	0.28	0.63	0.8	0.85	3.29
IV	1.03	0.38	0.83	0.75	1.35	4.34

Male's body as in Fig. 19, subrectangular. Dorsum is covered throughout with low, blunt tubercles. Tergite margins clearly visible. Anterior part of the carapace and the eye tubercle covered with bifid tack-like tubercles, which are considerably bigger than other tubercles. A fairly high eye tubercle is situated at the anterior edge of the carapace and connected to it by a well-developed stridulatory organ. Diameter of the eye tubercle 0.3 mm.

Chelicera. Basal segment dorsally with a very well developed and long apophysis (=the cheliceral gland) (Fig. 21). Dorsal surface in front of the apophysis is armed with three to five small tubercles. This apophysis is equal in length to the basal segment. External lateral surface of basal segment with a row of two to four small tubercles. Distal segment (in lateral view) is enlarged in its medial part. Chelicera covered with setae.

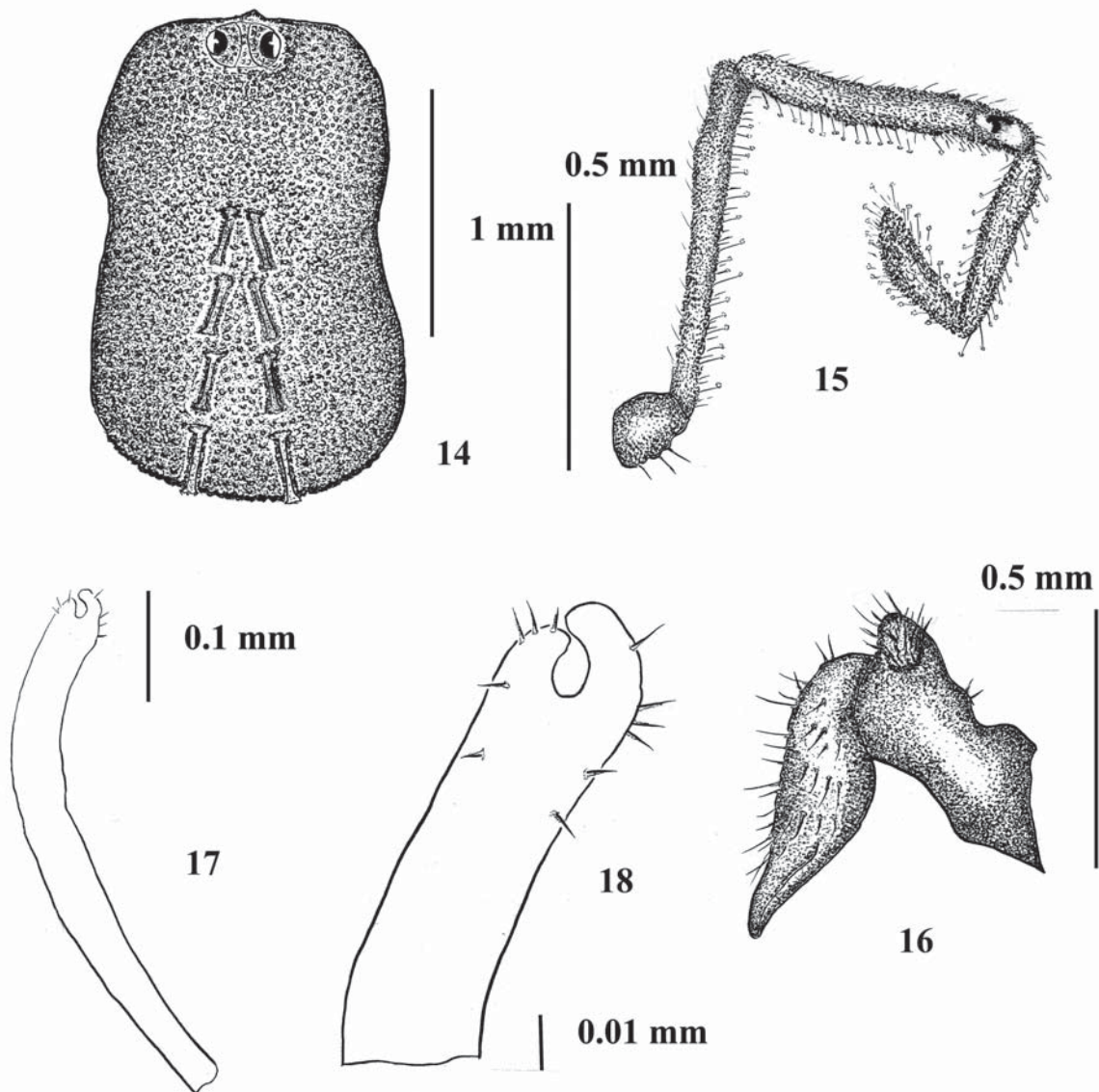
Palp. Tarsus and tibia of palps densely covered with clavate setae. Patella and femur covered with clavate setae only on ventral part (Fig. 20). Tarsal claw absent.

Legs relatively short, spindle-shaped, covered with small denticles, setae and hairs. Femora I–IV with pseudosegments as follows: I — 0, II — 2–5, III — 1, IV — 2–4.

Penis as in Figs 22–23.

FEMALE. Measurements. Body: length 2.1; width 1.3. Chelicera: basal segment 0.3; distal segment 0.55. Length (in mm) of palp and leg segments:

	Fm	Pa	Ti	Mt	Ta	Total
Palp	0.73	0.73	0.6	-	0.35	2.41
Legs						
I	0.8	0.35	0.58	0.73	0.88	3.34
II	1.18	0.35	0.9	0.93	1.68	5.04
III	0.7	0.35	0.6	0.8	0.85	3.3
IV	1.28	0.4	0.75	0.85	0.95	4.23



Figs 14–18. *Histricostoma caucasicum* (Redikorzev, 1936), ♂: 14 — body, dorsal view; 15 — palp, lateral view; 16 — chelicerae, lateral view; 17 — penis, lateral view; 18 — glans of penis, lateral view. Scales: 1.0 mm (14), 0.5 mm (15, 16), 0.1 mm (17), 0.01 mm (18).

Рис. 14–18. *Histricostoma caucasicum* (Redikorzev, 1936), ♂: 14 — тело, дорсально; 15 — пальпа, латерально; 16 — хелицера, латерально; 17 — пенис, латерально; 18 — головка пениса, латерально. Масштаб: 1,0 мм (14), 0,5 мм (15, 16), 0,1 мм (17), 0,01 мм (18).

General appearance as in male, but the female has a longer body, lacking the apophysis and tubercles on the basal segment of the chelicerae.

COLORATION: Body black–brown. Limbs dark or light brown.

DIAGNOSIS. *Nemastoma tenebricosum* differs from others species of this genus in the presence of a very high apophysis on the dorsal surface of the basal cheliceral segment and in the structure of the penis.

HABITAT. This species was collected from under stones and in litter.

DISTRIBUTION. This species has been found in the Caucasus only, viz. in Abkhazia [Redikorzev, 1936; Roew-

er, 1951; Mcheidze, 1964] and in Azerbaijan [present data].

Paranemastoma kalischevskyi (Roewer, 1951)

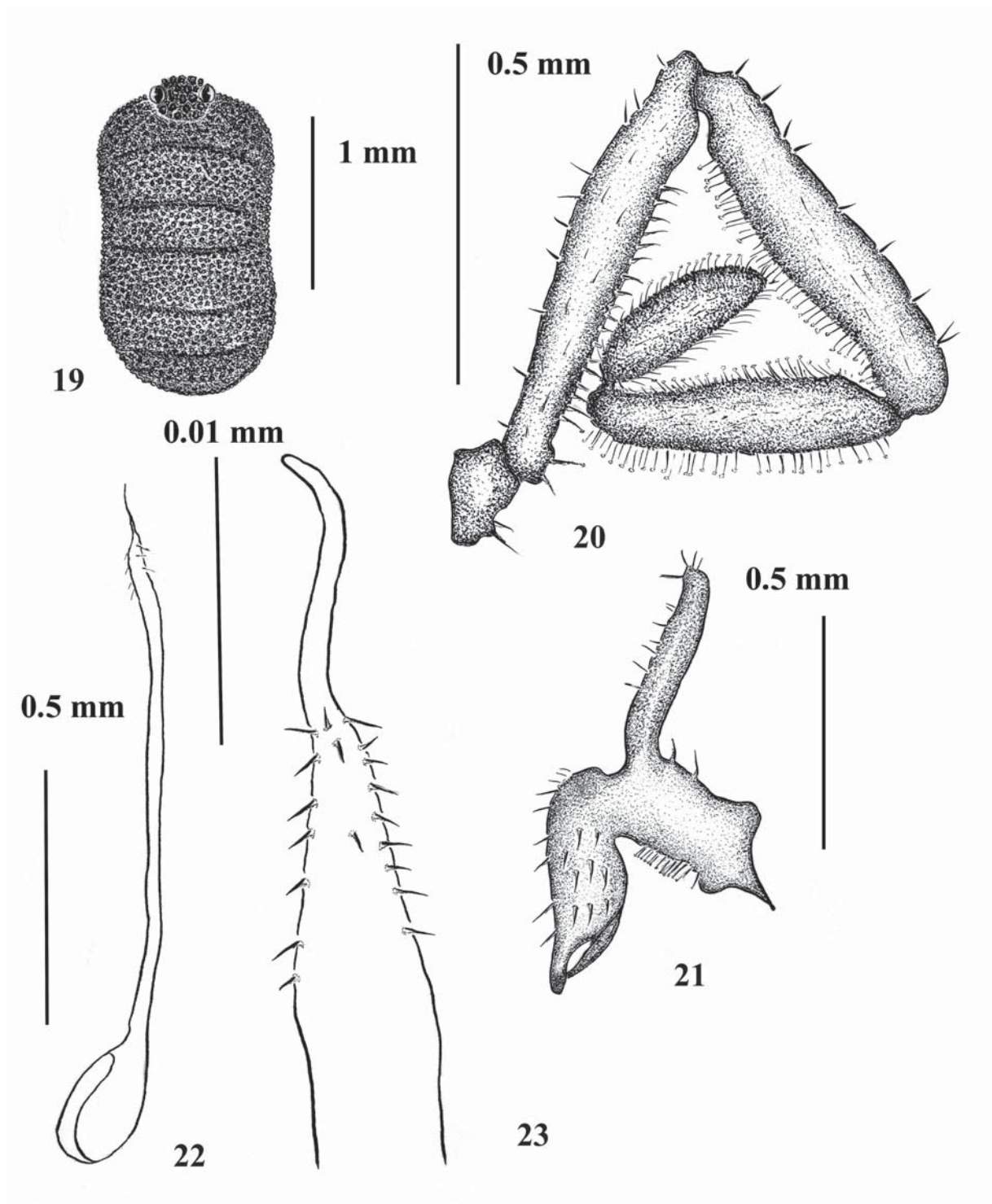
Figs 24–30.

Nemastoma kalischevskyi Roewer, 1951: 102, fig. 14.

Nemastoma kalischevskyi: Starega, 1966: 390–391, figs 3–5

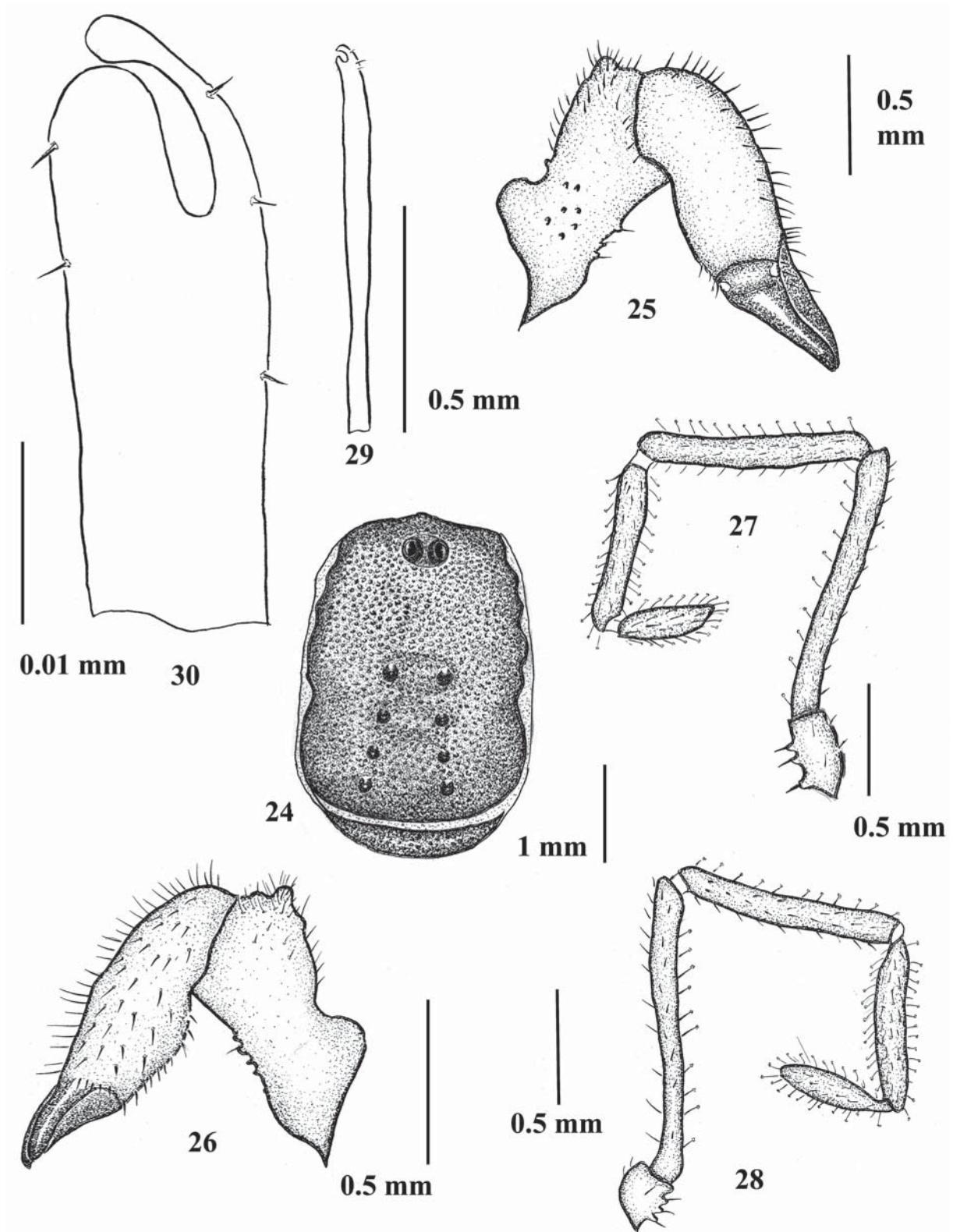
Paranemastoma kalischevskyi: Starega, 1978: 204.

MATERIAL. AZERBAIJAN: 2 ♂♂, 1 ♀ (IZB 141, 156), 1 ♂, 4 ♀♀ (ISEA), ZSR, - 15 km NNE of Zakataly, between I and II cordons, mountain slope along right bank of River Katekh-chai, - 800 m a.s.l., [41°44'51.6"N, 46°36'19.8"E], 21–23.06.2003,



Figs 19–23. *Nemastoma tenebricosum* (Redikorzev, 1936), ♂: 19 — body, dorsal view; 20 — palp, lateral view; 21 — chelicerae, lateral view; 22 — penis, lateral view; 23 — glans of penis, lateral view. Scales: 1.0 mm (19), 0.5 mm (20–22), 0.01 mm (23).

Рис. 19–23. *Nemastoma tenebricosum* (Redikorzev, 1936), ♂: 19 — тело, дорсально; 20 — пальпа, латерально; 21 — хелицера, латерально; 22 — пенис, латерально; 23 — головка пениса, латерально. Масштаб: 1,0 мм (19), 0,5 мм (20–22), 0,01 мм (23).



Figs 24–30. *Paranemastoma kalischevskyi* (Roewer, 1951), ♂: 24 — body, dorsal view; 25, 26 — chelicerae, lateral view; 27, 28 — palp, lateral view; 29 — penis, lateral view; 30 — glans of penis, lateral view. Scales: 1.0 mm (24), 0.5 mm (25–29), 0.01 mm (30).

Рис. 24–30. *Paranemastoma kalischevskyi* (Roewer, 1951), ♂: 24 — тело, дорсально; 25, 26 — хелицера, латерально; 27, 28 — пальпа, латерально; 29 — пенис, латерально; 30 — головка пениса, латерально; Масштаб: 1,0 мм (24), 0,5 мм (25–29), 0,01 мм (30).

N.S. & A.C.; 1 ♀ (IZB 167) & 1 ♂, 2 ♀♀ (ISEA), ZSR, road to Rochugel Mt., near III cordon, 2100–2400 m a.s.l., [41°46'10.3"N, 46°36'13.0"E], 22.06.2003, N.S. & A.C.; 8 ♂♂, 9 ♀♀ (IZB 246), ZSR, between I and II cordon, in forest, 05.07.2004, N.S.; 1 ♂, 2 ♀♀ (IZB 253), ZSR, II cordon, near old Albanian church, 07.07.2004, N.S.

DESCRIPTION. MALE. Measurements. Body: length 3.3; width 2.2. Chelicera: basal segment 1.8; distal segment 1.18; length of forceps 0.1. Penis: length 1.2; width at base: 0.06; length of glans: 0.1. Length (in mm) of palp and leg segments:

	Fe	Pa	Ti	Mt	Ta	Total
Palp	1.45	1.15	0.8	-	0.55	3.95
Legs						
I	1.85	0.7	1.35	1.7	2.55	8.15
II	2.95	0.9	2.2	2.25	5.5	13.8
III	1.6	0.85	1.55	1.8	3.05	8.85
IV	2.8	0.95	1.8	2.25	3.25	11.05

Male's body (Fig. 24) as a tetrahedron, but stocky and rounded (without sharp corners). Body integument papillose. Carapace and first to fifth abdominal tergites fused to form a shield. Abdominal sternites without membranous divisions. The last three tergites are on the ventral surface. There are four pairs of low, cone-shaped tubercles on abdominal tergites II–IV. Eye tubercle situated at the anterior edge of the carapace and is covered with small blunt tubercles.

Chelicera relatively small, its basal segment armed dorsally with a low apophysis (=chelicerian gland) (Figs 25–26). The top of the cheliceral gland is densely covered with hairs. External lateral surface of basal segment with a group of four to six small, blunt tubercles, which is closer to the base of segment. Distal segment (in lateral view) slightly enlarged in its medial part and covered with hairs.

Palps relatively long and thin (Figs 27–28), covered with setae and hairs. Ventral side of femur, patella, tibia and all tarsi covered with clavate setae. Tarsus without a claw.

Legs relatively long, segments spindle-shaped, covered by acutely inclined denticles and hairs. Coxae I–IV with lateral rows of bifid tack-like tubercles, their tips are armed with sparse low and blunt tubercles. Femora of legs II–IV with pseudosegments as follows: I — 0, II — 5–6, III — 1–2, IV — 4–5.

Penis as in Figs 29–30.

DESCRIPTION. FEMALE. Measurements. Body: length 5.05; width 3.2. Chelicera: basal segment 1; distal segment 1.35; Length (in mm) of palp and leg segments:

	Fe	Pa	Ti	Mt	Ta	Total
Palp	1.45	1.05	0.8	-	0.55	3.85
Legs						
I	1.8	0.75	1.35	1.7	2.8	8.4
II	2.6	0.85	2.05	1.8	5.8	13.1
III	1.95	0.75	1.35	1.25	3.25	8.55
IV	2.6	0.85	1.7	1.75	4.15	11.05

Female differs from the male as follows: the body larger and more swollen, the caudal region is more pointed; the chelicerae are longer and thinner; the apophysis on the dorsal side of the basal segment of chelicera is absent; tibia and tarsus of palps covered with clavate setae. Limbs are longer than in the male. Dorsally and ventrally, the terminal abdominal tergites and all abdominal sternites are clearly separated by membranous structures. The number of pseudosegments of the femora is as follows: I — 0, II — 4–6, III — 2–3, IV — 5–6.

COLORATION. Body is black–brown. In females the membranous structure is a dark-ochre. Legs are brown or

ochre–brown. Palps light ochre, with small light brown spots on patellae. Base of basal cheliceral segment dark brown, anterior margin and apophysis in males light ochre. Distal segment of chelicera brown to dark brown.

DIAGNOSIS. *Paranemastoma kalischevskyi* differs from others species of this genus in the presence of four pairs of tubercles on the scutum and in the structure of the penis.

HABITAT. This species was collected in litter and under stones.

DISTRIBUTION. This species is currently known from Georgia (Adzharia and Abkhazia) [Roewer, 1951; Starega, 1966, 1978; Ljovuschkin 1966, 1972] and Azerbaijan [present data].

Mitostoma gracile (Redikorzev, 1936)

Figs 31–38.

Nemastoma gracile Redikorzev, 1936: 39–40. figs 9–11.

MATERIAL. AZERBAIJAN: 1 ♀ (IZB 152), ZSR, I cordon, 24.06.2003, N.S. & H.A.; 3 ♂♂, 3 ♀♀ (IZB 247), ZSR, between I and II cordon, 05.07.2004, N.S.

DESCRIPTION. MALE. Measurements. Body: length 1.9; width 1.4. Chelicera: basal segment 0.7; distal segment 0.8. Penis: length 1.4; width at base: 0.25; length of glans: 0.2. Length (in mm) of palp and leg segments:

	Fm	Pa	Ti	Mt	Ta	Total
Palp	1.2	1.25	1	-	0.6	4.05
Legs						
I	3.6	0.5	2.4	4	1.5	12
II	5.5	0.5	4.5	7.5	2.5	20.5
III	4	0.6	2.4	4.3	1.5	12.8
IV	5.5	0.6	3.4	5.8	1.8	17.1

Male's body subrectangular (Fig. 31), extended posteriorly; its entire surface is covered with small grains. The lateral aspect of the body and the tergite margins have dense, continuous rows of quadrangular tubercles. Eye tubercle medium-sized, covered with grains, fused with the anterior edge of the cephalothorax. Legs long and slender, covered with grains. Femur of legs I–IV with pseudosegments as follows: right femora: I — 11, II — 18, III — 11, IV — 13; left femora: I — 10, II — 21, III — 14, IV — 15.

Chelicera medium-sized. Basal segment dorsally with some tubercles and covered with setae. Distal segment possesses a short appendage on its internal, lateral side, also covered with setae dorsally and laterally (Figs 34, 35).

Palps very long. All palpal segments covered with numerous clavate setae (Figs 32, 33).

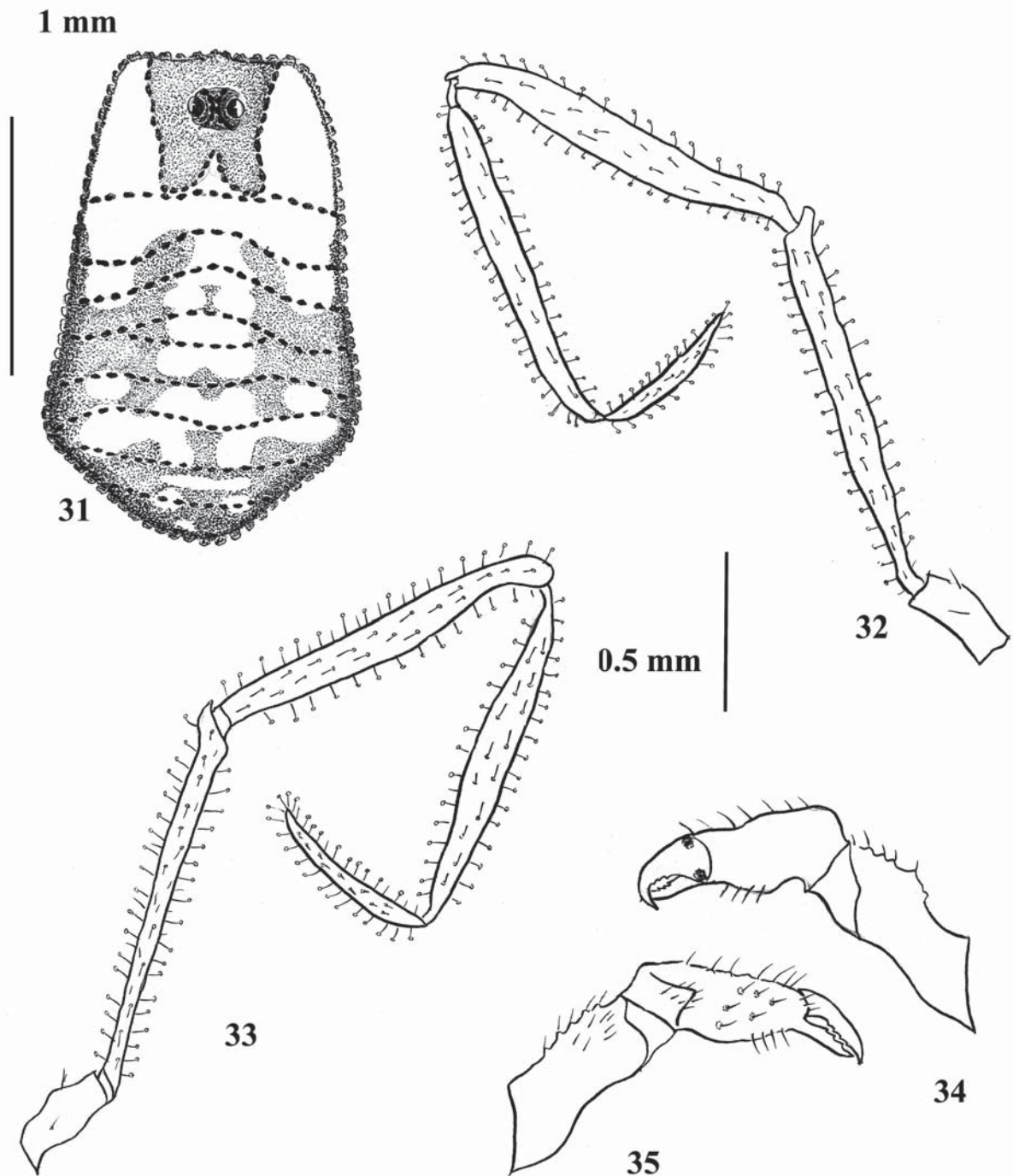
Penis as in Figs 36–38.

FEMALE. Measurements. Body: length 2.8; width 1.8 (in the widest part of the body). Chelicera: basal segment 0.5; distal segment 0.8; Length (in mm) of palp and leg segments:

	Fe	Pa	Ti	Mt	Ta	Total
Palp	1.5	1.75	1.25	-	0.7	5.2
Legs						
I	3.2	0.6	2	3.5	1.6	10.9
II	4.75	0.7	4.15	6.7	2.6	18.9
III	3.3	0.7	2.2	3.8	1.5	11.5
IV	4.5	0.75	3	5.25	1.7	15.2

Female differs from the male by having a larger, more rounded body. Palps larger and thicker, more densely covered with clavate setae and chelicera without appendages.

COLORATION. Body goldish, with dark, almost black spots, which form a regular pattern. Ventral part light goldish, with dark regions on the sternites. Chelicera and palps



Figs 31–35. *Mitostoma gracile* (Redikorzev, 1936), ♂: 31 — body, dorsal view; 32, 33 — palp, lateral view; 34, 35 — chelicerae, lateral view. Scales: 1.0 mm (31), 0.5 mm (32–35).

Рис. 31–35. *Mitostoma gracile* (Redikorzev, 1936), ♂: 31 — тело, дорсально; 32, 33 — пальпа, латерально; 34, 35 — хелицера, латерально. Масштаб: 1,0 мм (31), 0,5 мм (32–35).

black, with small light patches. Legs also black, with light patches distally and light pseudosegments.

Female is illustrated in Snegovaya [2003].

DIAGNOSIS. *Mitostoma gracile* differs from other species of this genus by its unique arrangement of the cheliceral appendages and the structure of the penis.

HABITAT. It was collected from under stones.

DISTRIBUTION. This species has been recorded from the Caucasus: Russia [Redikorzev, 1936; Roewer, 1951], Georgia [Redikorzev, 1936; Mcheidze, 1964; Starega, 1966, 1978] and Azerbaijan [Snegovaya, 2002: sub *M. chrysomelas*, 2004; present data].

Table 1. Diagnostic characters between *Rilaena zakatalica* sp.n., *Rilaena pusilla* Roewer, 1952 and *Rilaena triangularis* (Herbst, 1799).
Таблица 1. Отличия между *Rilaena zakatalica* sp.n., *Rilaena pusilla* Roewer, 1952 and *Rilaena triangularis* (Herbst, 1799).

	<i>R. zakatalica</i> sp.n.	<i>R. pusilla</i>	<i>R. triangularis</i>
Eye tubercle	Very broad, covered with hairs only (Fig 32)	Normal, covered with denticles [Snegovaya, 1999: fig. 29; 2004: fig. 36]	Narrow, with denticles [Martens, 1978: figs 493, 535; Chevrizov, 1979: fig. 101]
Legs	Short, Fe I and III spindle-shaped, thickened	Thin and long, Fe I-IV thin, not thickened.	Relatively long, thin, of identical thickness.
Palp	Short, apophyses on femur, patella and tibia are well marked and thickened. Femur and tibia on ventral part covered with large, spine-tipped tubercles. Femur also covered with black-tipped tubercles (Figs 36-38)	Long and thin, apophyses on patella and tibia small, not protruding forward. Femur covered ventrally with black-tipped tubercles and hairs [Snegovaya, 1999: fig. 30; 2004: fig. 37]	Relatively short, with well-marked apophyses, covered with teeth and hairs [Martens, 1978: fig. 534; Chevrizov, 1979: fig. 102]
Chelicera	Massive (Fig 33-35)	Thin [Snegovaya, 1999: fig. 31; 2004: fig. 38].	Normal [Martens, 1978: fig. 533; Chevrizov, 1979: fig. 103]
Penis	Corpus and glans thin and slim (Fig 39-42)	Corpus and glans thicker [Snegovaya, 1999: figs 32-33; 2004: figs 39-41; Starega, 1973: figs 31-32]	Corpus not very thin, glans slim [Martens, 1978: figs. 531-532; Chevrizov, 1979: figs. 104-105]

Family PHALANGIIDAE Simon, 1879

Rilaena triangularis (Herbst, 1799)

Rilaena triangularis (Herbst, 1799): Martens, 1978: 287–290, figs 531–536; Starega, 1978: 218; Chevrizov, 1979: 19, figs 101–105.

MATERIAL. AZERBAIJAN: 1 ♀ (IZB 145), ZSR, I–II cordons, 20.06.2003, N.S.

HABITAT. This species was collected on tree trunks.

DISTRIBUTION. This is a widespread European species [Martens, 1978; Starega, 1978], also found in Azerbaijan (Ismailly) [Snegovaya, 2002: sub *Platybunus pine-torium*, 2004].

NOTES. For description and distribution of this species, see Martens [1978].

Rilaena zakatalica sp.n.

Figs 39–58.

MATERIAL. HOLOTYPE: AZERBAIJAN: 1 ♂ (ZIN), ZSR, - 22 km NNE from Zakataly, Rochugel Mountain, 2500 m a.s.l., 22.06.2003, H.A. & N.S.

PARATYPES: AZERBAIJAN: 1 ♀ (ZIN), ZSR, - 15 km NNE of Zakataly, between I and II cordons, mountain slope along right bank of River Katekhchai, - 800 m a.s.l., [41°44'51.6"N, 46°36'19.8"E], 21–23.06.2003, N.S.; 1 ♂, 7 juv. (IZB 162) 6 ♀ (ISEA), ZSR, Rochugel Mt., 2500 m a.s.l., 22.06.2003, H.A. & A.C.

DESCRIPTION. MALE. Measurements. Body: length 4.0; width 2.6. Eye tubercle: width: 1.1. Chelicera: basal segment 1.7; distal segment 2.1; Penis: length 3.4; width: 0.2 (narrow part), 0.5 (basal part); length of glans: 0.3. Length (in mm) of palp and leg segments:

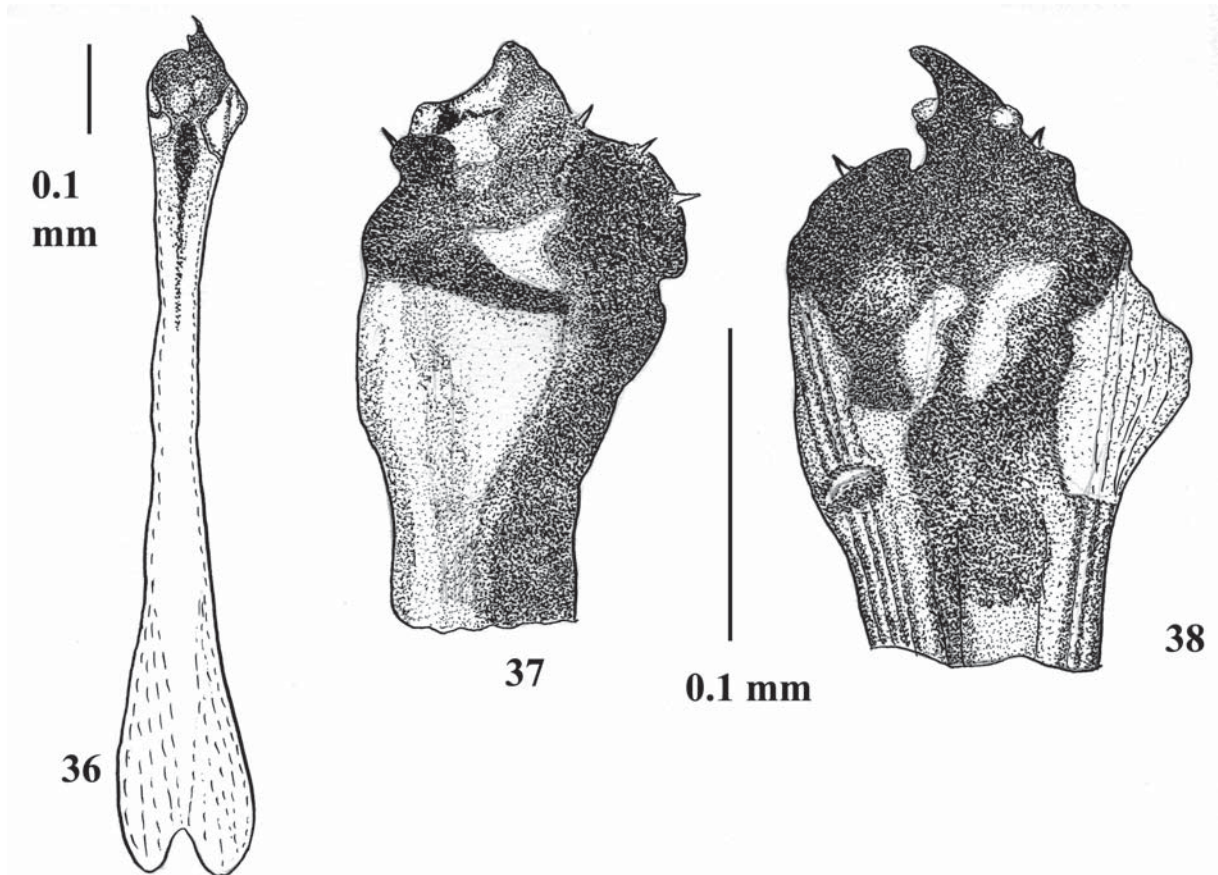
	Fe	Pa	Ti	Mt	Ta	Total
Palp	1.7	1.15	1.2	-	1.55	5.6
Legs						
I	2.15	1	2	1.75	5.25	12.15
II	3.35	1.25	3.35	1.5	10.3	19.75
III	2.6	1	1.9	1.75	6.2	13.45
IV	3.4	1.3	3.25	2.05	8.2	18.2

Male's body subrectangular (Fig. 31), with a constriction between the cephalothorax and the abdomen. Tubercles are situated at the anterior margin of the cephalothorax. Thorns (6 on each side of the longitudinal line) are situated in front of the eye tubercle. Lateral sides of cephalothorax with tubercles. Eye tubercle is wide, with lines of setae on each side (Fig. 32). On the cephalothorax all tergites bear a longitudinal row of bristles. Abdominal sternites and coxae of legs covered with small, black-tipped tubercles and hairs. Genital operculum is also hairy.

Chelicera as in Figs 33–35, strong and robust. First segment dorsally with a few small tubercles and teeth. Second segment with setae and teeth.

Palps as in Figs 36–38. Palpal coxa with a group of pointed tubercles. Trochanter ventrally with a few large, hair-tipped tubercles; dorsally with a few small tubercles; laterally with hairs. Femur with disto-mesal apophysis armed with scattered spines, ventrally with large spine-tipped tubercles and small tubercles; dorsally with small tubercles; laterally covered with hairs. Patella with disto-mesal apophysis, densely covered with hairs; dorsally and laterally with hairs only. Tibia with disto-mesal apophysis, also densely covered with hairs; ventrally covered with tubercles; dorsally and laterally with hairs. Tarsus covered with hairs only.

Legs relatively short. Femora I and III thicker and shorter than the others. Femora spindle-shaped. Each leg segment



Figs 36–38. *Mitostoma gracile* (Redikorzev, 1936), ♂: 36 — penis, dorsal view; 37 — glans of penis, lateral view; 38 — glans of penis, dorsal view. Scales 0.1 mm.

Рис. 36–38. *Mitostoma gracile* (Redikorzev, 1936), ♂: 36 — пенис, дорсально; 37 — головка пениса, латерально; 38 — головка пениса, дорсально. Масштаб 0,1 мм.

covered with longitudinal rows of small, hair-tipped tubercles and setae.

Penis as in Figs 39–42; stylus long and thin, dorsally with a longitudinal groove running from the base to the glans. Corpus of the penis wide at its base, becoming narrower in the middle and then getting wider (wing-shaped) at the glans. Glans elongated, each bearing two setae.

FEMALE. Measurements. Body: length 6.8; width 4.0. Eye tubercle: width: 1.15. Chelicera: basal segment 1.55; distal segment 2.1; Ovipositor: length 2.4, width 0.5. Length (in mm) of palp and leg segments:

	Fe	Pa	Ti	Mt	Ta	Total
Palp	1.7	1.25	1.2	-	1.5	5.65
Legs						
I	1.9	0.7	1.9	1.75	3.8	10.05
II	2.95	1	2.9	3	6.3	16.15
III	1.95	0.75	2	1.6	4.1	10.4
IV	2.75	1.2	2.2	4	4.6	14.75

Female larger, body oval (Figs 43–50). At the anterior margin of the carapace there are more tubercles than in

males. In front of the eye tubercle, a group of seven to eight tubercles is situated on each side. Ovipositor short (Figs 49, 50), the segments are covered with rows of setae.

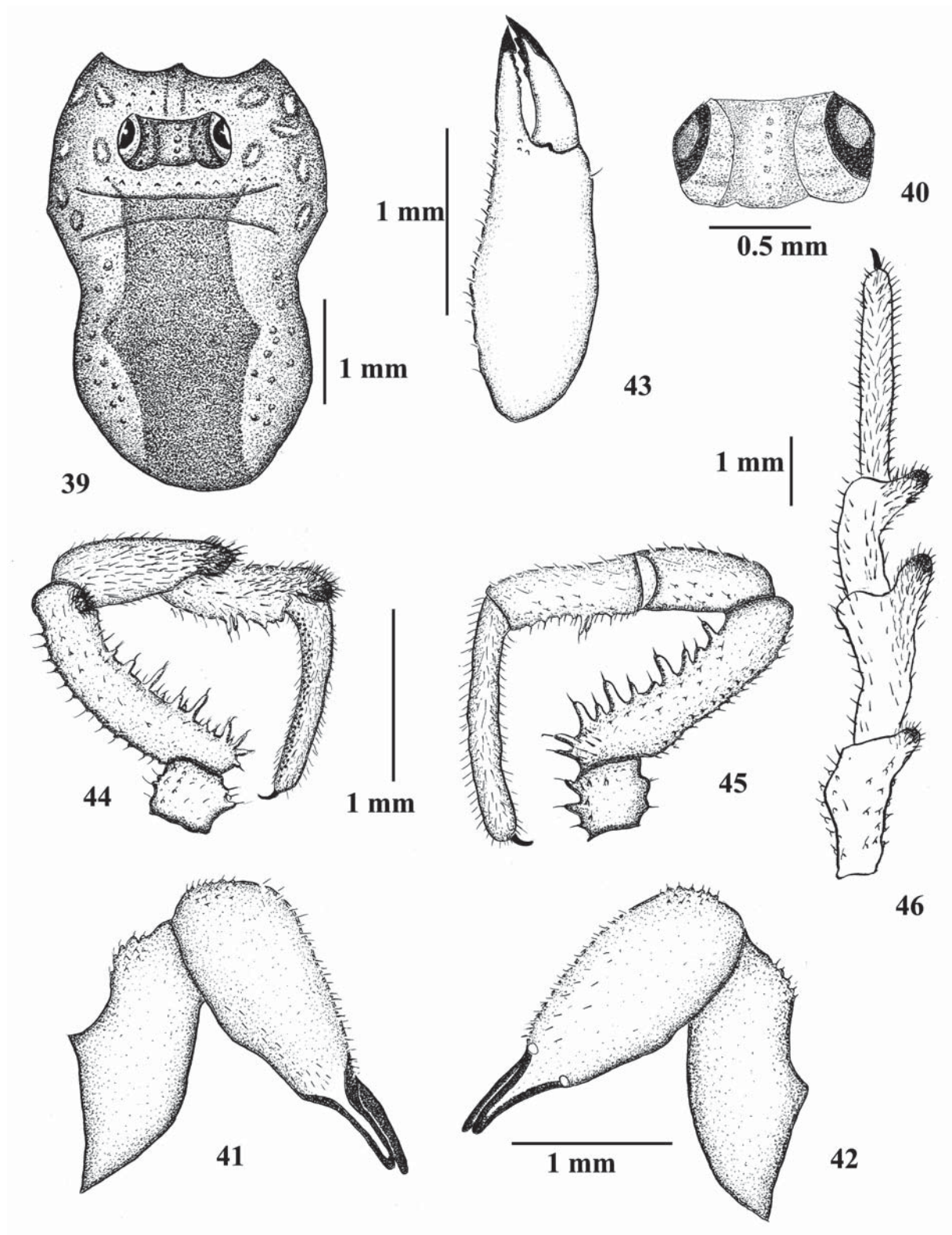
COLORATION. Body ochre-brown, with clearly expressed dark brown saddle and with dark brown, rounded spots all over the body. Abdomen light ochre-brown. Coxae of legs dark brown. Chelicerae dark brown, with light brown patches. Palps dark brown (femora) to yellow (tarsi). Legs brown, with dark brown patches. Penis dark brown at the base, gradually turning to yellow up to its tip, but the sides remain dark brown. Distal parts of the glans also dark brown.

DIAGNOSIS. For diagnostic characters between *Rilaena zakatalica* sp.n. and two related species: *Rilaena pusilla* Roewer, 1952 and *Rilaena triangularis* (Herbst, 1799), see the table 1:

ETYMOLOGY. This species is named after the region in which it was collected, Zakataly district of Azerbaijan.

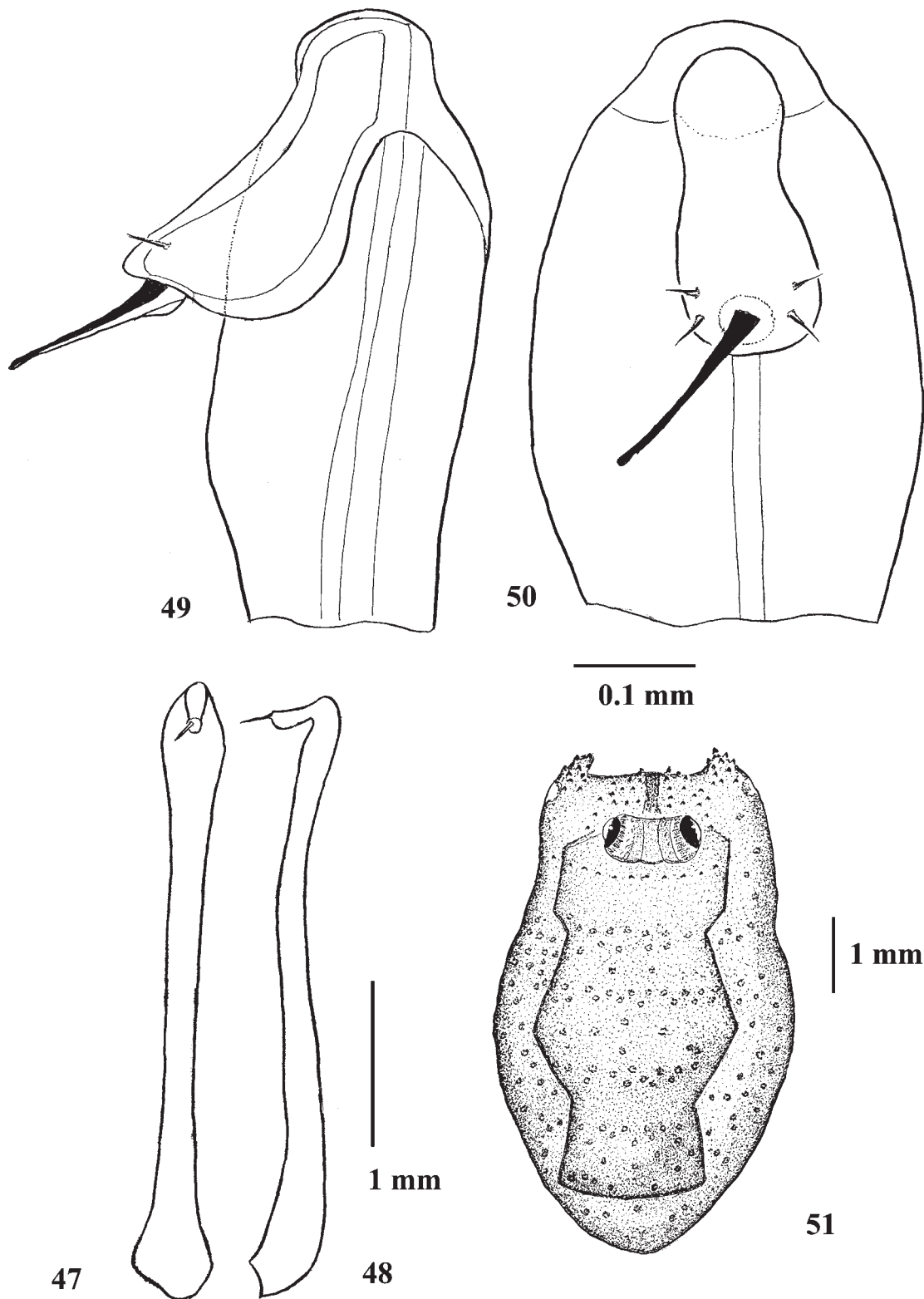
HABITAT. This species was collected in the alpine zone from under stones and in the grass along stream banks.

DISTRIBUTION. The type locality only.



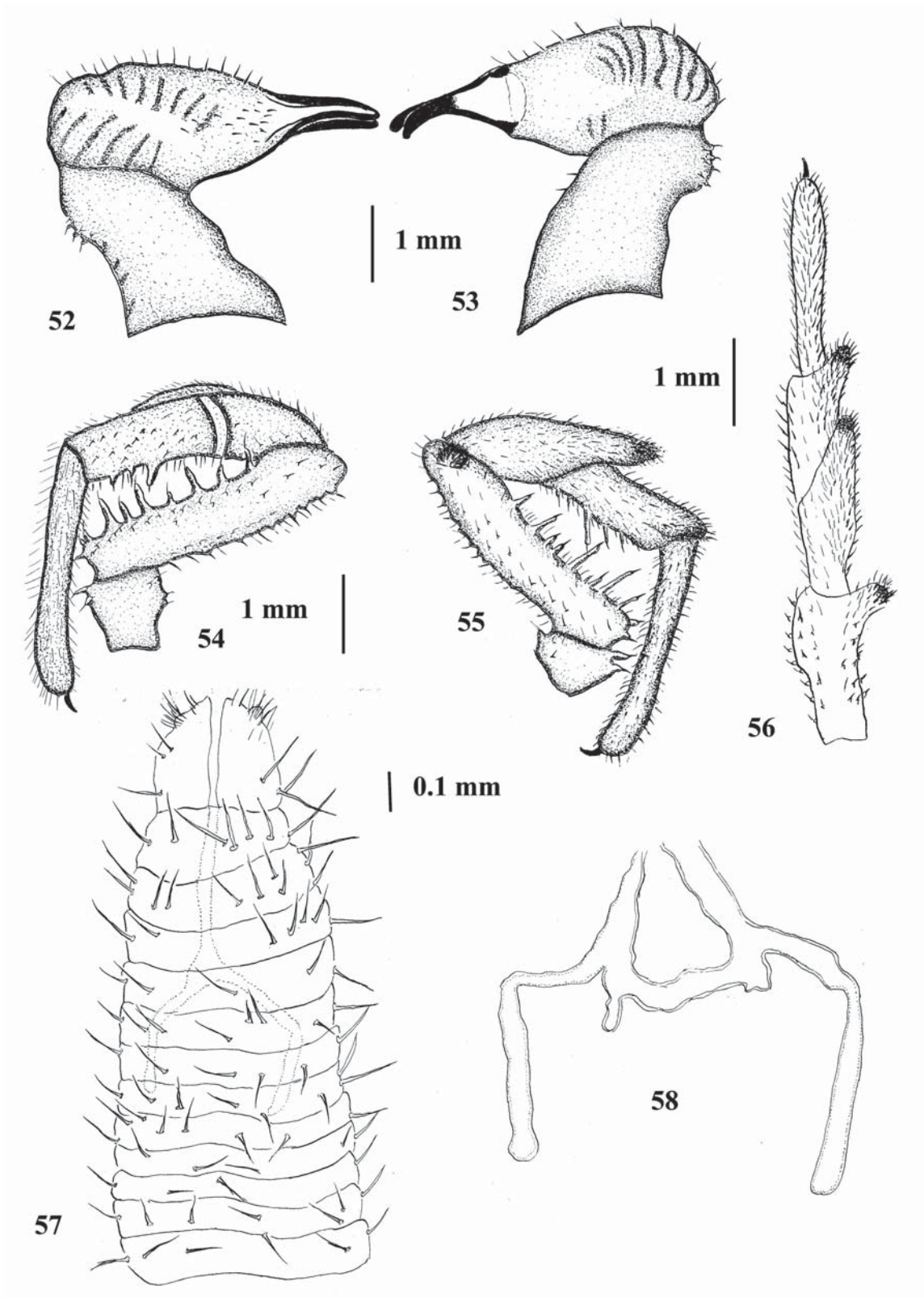
Figs 39–46. *Rilaena zakatalica* sp.n.: 39 — male body, dorsal view; 40 — eye tubercle, dorsal view; 41, 42 — male chelicerae, lateral view; 43 — II cheliceral segment, lateral view; 44, 45 — male palp, lateral view; 46 — male palp, dorsal view. Scales: 1.0 mm (39, 41–46), 0.5 mm (40).

Рис. 39–46. *Rilaena zakatalica* sp.n.: 39 — тело самца, дорсально; 40 — глазной бугор, дорсально; 41, 42 — хелицера самца, латерально; 43 — II членик хелицеры, латерально; 44, 45 — пальпа самца, латерально; 46 — пальпа самца, дорсально. Масштаб: 1,0 мм (39, 41–46), 0,5 мм (40).



Figs 47–51. *Rilaena zakatalica* sp.n.: 47 — penis, dorsal view; 48 — penis, lateral view; 49 — glans of penis, lateral view; 50 — glans of penis, dorsal view; 51 — female body, dorsal view. Scales: 0.1 mm (49, 50), 1.0 mm (47, 48, 51).

Рис. 47–51. *Rilaena zakatalica* sp.n.: 47 — пенис, дорсально; 48 — пенис, латерально; 49 — головка пениса, латерально; 50 — головка пениса, дорсально; 51 — тело самки, дорсально. Масштаб: 0,1 мм (49, 50), 1,0 мм (47, 48, 51).



Figs 52–58. *Rilaena zakatalica* sp.n., ♀: 52, 53 — chelicerae, lateral view; 54, 55 — palp, lateral view; 56 — palp, dorsal view; 57 — ovipositor, ventral view; 58 — seminal receptacle. Scales: 1.0 mm (52–56), 0.1 mm (57).

Рис. 52–58. *Rilaena zakatalica* sp.n., ♀: 52, 53 — хелицера, латерально; 54–55 — пальпа, латерально; 56 — пальпа, дорсально; 57 — овиопозитор, вентрально; 58 — семяприёмники. Масштаб: 1,0 мм (52–56), 0,1 мм (57).

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