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Harvestmen (Arachnida: Opiliones) from the yew and box-tree grove of the Caucasian State Natural Biospheric Reserve, Russia

Сенокосцы (Arachnida: Opiliones) тисо-самшитовой рощи Кавказского государственного природного биосферного заповедника, Россия

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Key words: harvestman, Caucasus, *Calathocratus*, *Giljarovia*, *Caucnemastoma*, new species.

Ключевые слова: сенокосцы, Кавказ, *Calathocratus*, *Giljarovia*, *Caucnemastoma*, новые виды.

Abstract. Faunistic and taxonomic data on the harvestmen from the yew and box-tree grove (Caucasian State Natural Biospheric Reserve, Russia) are presented. 16 harvestmen species from 5 families were found in this Reserve. Four new species (*Calathocratus hirsutus* Snegovaya, **sp. n.**, *Calathocratus minutus* Snegovaya, **sp. n.**, *Giljarovia kratochvili* Snegovaya, **sp. n.**, *Caucnemastoma martensi* Snegovaya, **sp. n.**) are described.

Резюме. Приводятся фаунистические и таксономические данные по сенокосцам с территории тисо-самшитовой рощи Кавказского государственного природного биосферного заповедника. 16 видов сенокосцев из 5 семейств отмечены для этой территории. 4 вида описываются как новые для науки (*Calathocratus hirsutus* Snegovaya, **sp. n.**, *Calathocratus minutus* Snegovaya, **sp. n.**, *Giljarovia kratochvili* Snegovaya, **sp. n.**, *Caucnemastoma martensi* Snegovaya, **sp. n.**).

Introduction

The yew and box-tree grove is part of the of the Caucasian State Natural Biospheric Reserve but geographically separated from the main territory: on the right and left banks of the Khosta River on the south-eastern slopes of the Big Akhun Mountain (fig. 1) about 20 km southeast of Sochi, Russia. The yew and box-tree grove of Khosta was included in the Caucasian reserve in 1930 by recommendation of a geobotanical expedition under the leadership of V.N. Sukachyov. The about 300 hectares of the grove, belong to the Colchis geobotanical subprovince on the Black Sea of the province of the Northern Caucasus [Seredin, 1980]. The grove covers the unique, practically primary, coniferous forest with yew berry (*Taxus baccata*), box-tree (*Buxus colchica*), and typical broad-leaved trees of the Western Caucasus (*Tilia caucasica*, *Quercus*, *Fraxinus excelsior*, *Acer*, *Carpinus caucasica*).

Geology and geography of the grove is composed of

upper-Cretaceous karstic limestones, with high structural diversity of abundant abrupt breaks, vertical slopes, and limestone-plates arising from the surface.

The climate of the territory is warm and humid. High relative humidity of the air (more than 70% in the highlands and up to 90% in the ravines and valleys) is caused by regular and abundant rainfall (mid-annual quantity 135 cm) and relative high average temperatures (the mid-annual temperature is 14.5 °C).

The yew and box-tree grove isolated from the basic territory of reserve and represents natural complex mixed broad-leaved woods in Black Sea Coasts. The grove reserved is under the protection of UNESCO as an object of the World Nature Heritage. Relict and preglacial forests which covered all Europe 18–25 million years ago are miraculously preserved almost intact in yew and box tree grove. This uniqueness of the territory, has caused interest in carrying out of researches and has become the cause material gathering on the given site.

This is the first report on the harvestman fauna of the yew and box-tree grove.

Material and methods

Material was mainly collected during 2006 from March until October and exclusively by soil traps (by Yu.A. Chumachenko). 0.5 liter plastic containers were used with a 4% solution of formaldehyde as preservation fluid. Traps were checked and exchanged once a month. Soil traps were set up on four sites, every site included an area of 100 m² characterized by various types of phytocenosis, with 10 soil traps in each plot. In the following a description of each site is given (see also fig. 1).

Broad-leaved box-tree (43°31'55.45"N / 39°52'34.08"E). It is located on undeveloped calcareous soils. Box-tree (*Buxus colchica*) mainly occupies (up to 100 %) the second synfolium in the broad-leaved plantings



Fig 1. Map of the sampling localities in yew and box-tree grove (Caucasian State Natural Biospheric Reserve).

1 – Broad-leaved box-tree; 2-1 – Yew-beech and Cherry laurel (area 1); 2-2 – Yew-beech and Cherry laurel (area 2); 3 – Beech/Cherry laurel forest.

Рис. 1. Карта расположения почвенных ловушек в тисо-самшитовой роще (Кавказский государственный природный биосферный заповедник).

1 – самшитник широколиственный; 2-1 – тисо-букняк лавровишневый (участок 1); 2-2 – тисо-букняк лавровишневый (участок 2); 3 – букняк лавровишневый.

with ash (*Fraxinus excelsior*), linden (*Tilia caucasica*), hornbeam (*Carpinus caucasica*), and oak (*Quercus* sp.) in the first tree-layer (synfolium). The average stand density is 0.6. The main place undergrowth is primarily box-tree, and sometimes ash and linden can be found [Yeskina, Grabenko, 2004]. Often lianas of ivy species (*Hedera helix* and *H. colchica*) and clematis (*Clematis vitalba*) can be found on the trees. Grassy plants show low abundance within the ground vegetation which includes noticeably butcher's-broom (*Ruscus aculeatus* and *R. colchicus*), umbel (*Umbilicus oppositifolius*), asplenium (*Asplenium trichomanes*), phyllitis (*Phyllitis scolopendrium*), etc.

Yew-beech and Cherry laurel: grows on degraded calcareous heavy loams [Lazuk, 1960]. Two plots have been surveyed.

Plot 1 (43°31'38.28"N / 39°52'32.81"E). The canopy consists of mainly yew with occasional beech (*Fagus orientalis*), hornbeam, and ash. The average stand density is 0.5. The under storey is dense and formed of Cherry laurel (*Laurocerasus officinalis*). Some of the Cherry laurel stems are 10–15 cm in diameter. Clumps of Cherry laurel alternate on more leveled areas with box-tree, forming the second synfolium in such places. There are many lianas, mainly smilax (*Smilax excelsa*), Colchis and ivy. There are many butcher's-broom Colchis in the openings of the underbrush fields; sedges (*Carex pendula* and *C. divulsa*), hollyfern (*Polystichum angulare*), multileg (*Polypodium australe*) and sanicle (*Sanicula europaea*) are occasionally

found.

Plot 2 (43°32'2287"N / 39°52'22.94"E). It is located on the eastern slope of the Akhunki ridge. The large stock yews dominate in the forest stand. The average stand density is 0.4. The scarce underbrush is composed of the medicinal, cultivated Cherry laurel. Colchis Ivy dominates as the ground vegetation. *Matteuccia struthiopteris* and *Paris incompleta* also are found.

Beech/Cherry laurel forest (43°32'15.9"N / 39°52'38.57"E). This forest is located on the northwest slope of Akhunki ridge and its area is about 40 hectares. The beech prevails in the eastern plantings. The average stand density is 0.6. The underbrush is dense and formed by predominately with Cherry laurel, seldom *Ilex colchica*, *Euonymus latifolius* and *E. sempervirens* will be seen. The grass cover is absent under dense Cherry laurel underbrush. It is individual, (for example 5 species per hectare), in gleams between Cherry laurel curtains, meets young growth of yew up to 3 meters in height.

Type specimens of opilionids are shared among the following museums and institutions: ZMMU – Zoological Museum of the Moscow University after Lomonosov (Russia); ZIN – Zoological Institute of Russian Academy of Sciences (Saint-Petersburg, Russia); RCNS – reference collection of Nataly Snegovaya (Baku, Azerbaijan), TTU-Z – Invertebrate Zoology, Museum of Texas Tech University (USA); SMF – Senckenberg Museum, Frankfurt am Main (Germany).

Species survey

Trogulidae Sundevall, 1833

Calathocratus caucasicus (Šilhavý, 1966)

Calathocratus africanus: Roewer, 1923: 647–648: fig. 810; Redikorzev, 1936: 33; Staręga, 1966: 389–390, fig. 1–2.

Platybessobius caucasicus Šilhavý, 1966a: 151–152, fig. 1–13; Staręga, 1978: 199; Chevrizov, 1979: 8, fig. 8–13; Snegovaya, 1999: 435–454, fig. 1–4; Snegovaya, 2004: 308; Snegovaya, Chemeris, 2005: 263–264, fig. 1–9; Snegovaya, Staręga, 2011: 48.

Calathocratus caucasicus: Schönhofer, Martens, 2010: 59.

Material. 58♂, 43♀, 64 juv. (RCNS), yew-beech and Cherry laurel (area 2); 46♂, 38♀, 70 juv. (RCNS), broad-leaved box-tree; 142♂, 127♀, 287 juv. (RCNS), beech/Cherry laurel forest; 46♂, 44♀, 90 juv. (RCNS), yew-beech and Cherry laurel (area 1).

Comments. This is a widely distributed species on all Caucasus territory [Staręga, 1978; Snegovaya, 2004; Snegovaya, Chemeris, 2005].

Trogulus rossicus Šilhavý, 1968

Trogulus aquaticus: Roewer, 1950: 55; Šilhavý, 1966a: 151.

Trogulus nepaeformis: Staręga, 1966: 388–389; Snegovaya, 2004: 308, fig. 1–5.

Trogulus rossicus Šilhavý, 1968: 25–27, fig. 1–7; Staręga, 1978: 199; Chevrizov, 1979: 8, fig. 20–22; Snegovaya, 1999: 453, fig. 5–8; Snegovaya, Chemeris, 2005: 264, 266, fig. 10–13.

Material. 106♂, 77♀, 69 juv. (RCNS), yew-beech and Cherry laurel (area 2); 57♂, 17♀, 9 juv. (RCNS), broad-leaved box-tree; 148♂, 72♀, 58 juv. (RCNS), beech/Cherry laurel forest; 36♂, 36♀, 50 juv. (RCNS), yew-beech and Cherry laurel (area 1).

Comments. This species already was mentioned earlier from Krasnodar Region [Šilhavý, 1968], also it is known from Stavropol Region [Snegovaya, 1999] and Azerbaijan [Snegovaya, 2004; Snegovaya, Chemeris, 2005].

Calathocratus hirsutus Snegovaya, sp. n.

(Fig. 2–14)

Material. Holotype ♂ (ZMMU) and paratype 1♀ (ZMMU), yew-beech and Cherry laurel (area 1); paratypes: 1♂, 1♀ (ZIN), 1♂, 1♀ (TTU-Z), 1♂, 1♀ (SMF), beech and Cherry laurel forest; 12♂, 1♀, 1 juv. (RCNS), yew-beech and Cherry laurel (area 2); 4♂, 1 juv. (RCNS), broad-leaved box-tree; 18♂, 5♀, 3 juv. (RCNS), beech/Cherry laurel forest; 37♂, 3♀, 5 juv. (RCNS), yew-beech and Cherry laurel (area 1).

Description. Male. Body length 6.4–7.25 mm (n=53; holotype 6.7 mm), width 2–2.8 mm (n=53; holotype 2.8 mm) (fig. 2–3). Body oval, broad, densely covered with long spine-tipped papillae with long setae (till 0.25 mm). Head cap broad and circular (diameter ~ 0.8 mm). Eye mound relatively high. Eye relatively big, distance between eyes 0.5 mm.

Basal segment of chelicera (holotype) 1.05 mm, distal 1 mm. Length of palpal segments (holotype): femur 0.56, patella 0.25, tibia 0.35, tarsus 0.25; total length 1.41 mm.

Legs relatively long, also covered with long spine-tipped papillae with long setae. Tarsal formula for this species 2–1–2–2. Apophyses on astragalus of metatarsi I–IV sufficiently long. Legs I shorter than other and thickened. Tarsi II relatively long and broad. Length of legs (mm): I – 1.3–1.8+0.5–0.9+0.8–1.2+0.9–1.25+0.4–

0.5, total length 3.9–5.65; II – 2.25–3.25+0.8–1.1+1.8–2.25+2–2.4+0.8–1, total length 7.65–10; III – 1.4–1.9+0.5–0.9+1–1.4+1.3–1.6+0.4–0.75, total length 4.6–6.55; IV – 2.3–2.8+0.8–1.5+1.7–2.2+1–2.2+0.5, total length 8.6–9.2.

The truncus of penis is parallel sided, slightly narrowed to glans; glans of oval form with long stylus. Penis length 1.7–2.1 (n=53; holotype 1.7).

Female. Body 7.3–8.2 mm (n=9), width 2.4–3.5 (n=9) mm (fig. 57). Length of legs (mm): I – 1.5–2.3+0.6–0.75+1–1.25+1–1.2+0.4–0.5, total length 4.5–6 (n=9); II – 2.75–3.5+0.8–1.1+2–2.25+2–2.5+0.8–1, total length 8.35–10.35 (n=9); III – 1.7–2+0.75–0.9+1.25–1.5+1.5–1.75+0.5–0.6, total length 5.7–6.75 (n=9); IV – 2.5–3+1–1.1+1.8–2.2+2–2.3+0.5–0.6, total length 7.8–9.2 (n=9).

Diagnosis. *Calathocratus hirsutus* sp. n. is most closely related with *C. beieri* Gruber, 1968, but differs in the following aspects: *C. hirsutus* sp. n. body larger and broader, in *C. hirsutus* sp. n. papillation with long setae more advanced, eye mound larger, front cup more rounded and larger, legs longer and penis has truncus with almost parallel sides and glans of penis has oval form till cone-shaped with long and thin stylus in *C. beieri* [Gruber, 1968: fig. 1–13, photo 1–3].

Etymology. The species is named refers to its dense cover with long setae. «Hirsutus» is Latin meaning hairy or bristly.

Calathocratus minutus Snegovaya, sp. n.

(Fig. 15–27)

Material. Holotype ♂ (ZMMU) and paratype 1♀ (ZMMU), yew-beech and Cherry laurel (area 1); paratypes: 1♂, 1♀ (ZIN), yew-beech and Cherry laurel (area 1); 1♂, 1♀ (TTU-Z), broad-leaved box-tree; 1♂, 1♀ (SMF) broad-leaved box-tree; 1♀ (RCNS), yew-beech and Cherry laurel (area 2); 2♂, 3♀ (RCNS), broad-leaved box-tree; 4♂, 4♀, 2 juv. (RCNS), beech/Cherry laurel forest; 1♀ (RCNS), yew-beech and Cherry laurel (area 1).

Description. Male. Body length 4.1–5 mm (n=10; holotype 4.4 mm), width 1.2–1.75 mm (n=10; holotype 1.5 mm). Body small, oblong-oval form. Dorsal granulation regular, but body setae very small and poorly developed. Head cup relatively long and oval form (length 0.75 mm, width 0.65 mm). Eye mound poorly expressed, small with small eyes, distance between eyes 0.35 mm.

Basal segment of chelicerae (holotype) 0.7 mm, distal 0.63 mm. Length of palpal segments (holotype): femur 0.3, patella 0.15, tibia 0.2, tarsus 0.15; total length 0.8 mm.

Legs normal size, femora I–II thickened, setae on the legs thin and transparent. Legs papillation small and transparent. Tarsal formula for this species 2–1–2–2. Apophyses on astragalus of metatarsi I–IV large and broad. Tarsus II not very long and thickened. Length of legs (mm): I – 0.8–1+0.5–0.6+0.6–0.75+0.5–0.75+0.3–0.4, total length 2.7–3.5; II – 1.4–1.7+0.5–0.7+0.8–1.1–1.2+0.7, total length 4.9–5.4; III – 0.8–1.1+0.5–0.6+0.75–1+0.75–1+0.3–0.4, total length 3.1–4.1; IV – 1.3–1.5+0.6–0.8+0.9–1.2+1–1.25+0.3–0.4, total length 4.1–5.15.

Penis length 1.3 mm (holotype). The truncus of penis flattened dorso-ventrally; glans of oval form with long curved stylus.

Female. Body 4.7–5.25 mm (n=9), width 1.4–1.8 mm (n=8). Length of legs (mm): I – 0.8–1+0.5+0.6–0.75+0.6–0.75+0.3, total length 2.8–3.3 (n=9); II – 1.5–1.6+0.5–0.75+0.9–1.1+1–1.25+0.6–0.7, total length 4.5–5.4 (n=9); III – 0.8–1+0.5–0.6+0.75–0.9+0.75+0.3–0.4, total length 4.4–3.65 (n=9); IV – 1.25–1.5+0.5–0.75+1–1.1+1–1.35+0.3–0.4, total length 4.05–5.1 (n=8).

Diagnosis. *C. minutus* sp. n. differs from *C. beieri* [Gruber, 1968: fig. 1–13, photo 1–3]: in *minutus* papillation more reduced; eye size smaller in *minutus*; prominent

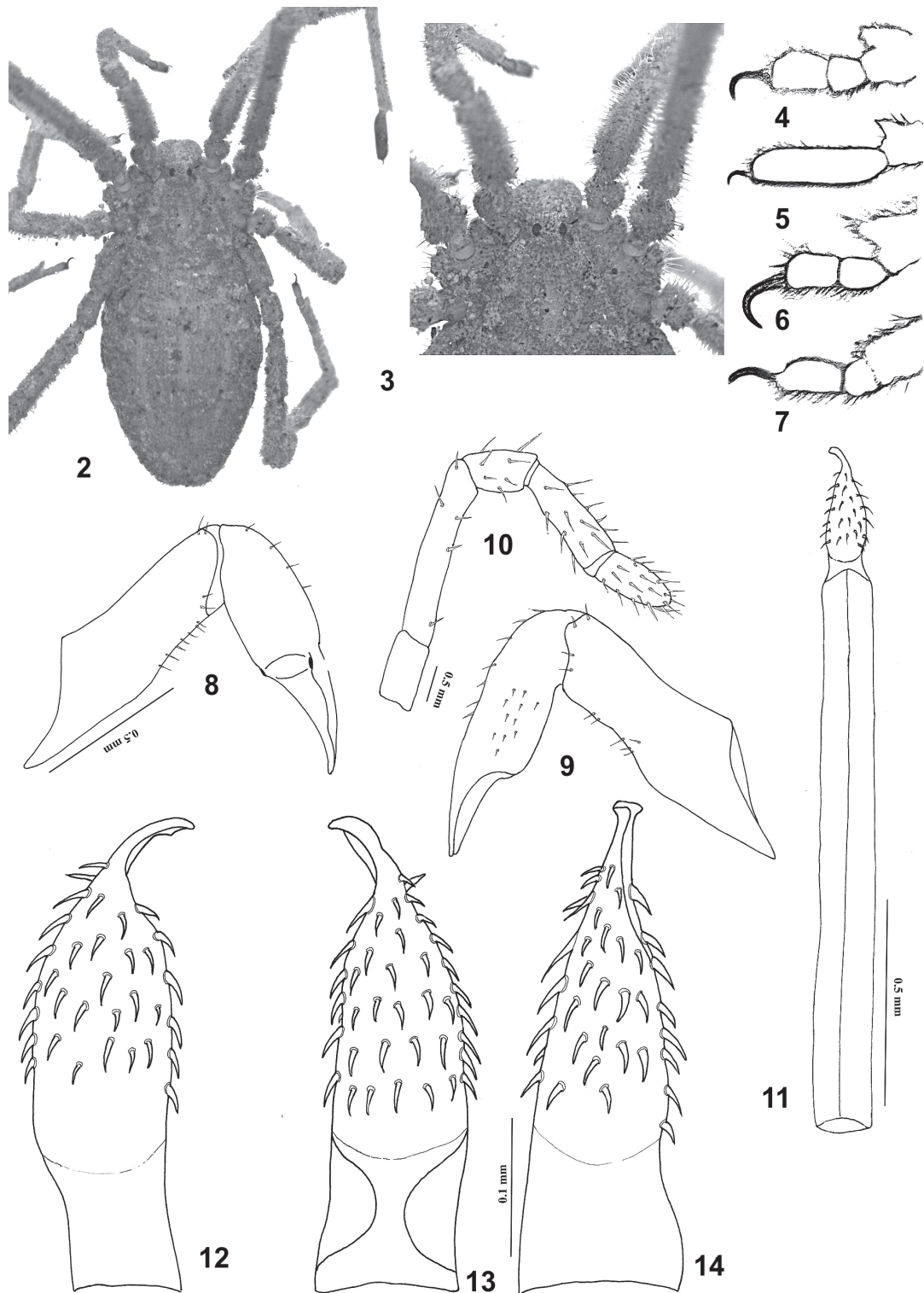


Fig. 2–14. *Calathocratus hirsutus* Snegovaya **sp. n.**, male.
 2–3 – body, dorsal view; 4 – tarsus I, lateral view; 5 – tarsus II, lateral view; 6 – tarsus III, lateral view; 7 – tarsus IV, lateral view; 8 – chelicerae, retrolateral view; 9 – chelicerae, prolateral view; 10 – pedipalp, prolateral view; 11 – penis, dorsal view; 12 – glans of penis, ventral view; 13 – glans of penis, dorsal view; 14 – glans of penis, lateral view.

Рис. 2–14. *Calathocratus hirsutus* Snegovaya **sp. n.**, самец.
 2–3 – тело, дорсально; 4 – лапка I, латерально; 5 – лапка II, латерально; 6 – лапка III, латерально; 7 – лапка IV, латерально; 8 – хелицера, ретролатерально; 9 – хелицера, пролатерально; 10 – педипальпа, пролатерально; 11 – пенис, дорсально; 12 – головка пениса, вентрально; 13 – головка пениса, дорсально; 14 – головка пениса, латерально.

papillae less developed in *minutus*, Tarsus II in *beieri* shorter and thicker, than in *minutus*, and truncus of penis in *beieri* has curved sides, glans of penis in *beieri* cone-shaped to oval in shape in *minutus*. *C. minutus* sp. n. differs from *C. hirsutus*: in *hirsutus* papillation with long setae more advanced, in *minutus* body size smaller, than *hirsutus*; eye size smaller in *minutus*; in *minutus* penis smaller than in *hirsutus*.

Etymology. The species is derived from the Latin. «Minutus» is Latin meaning small or minor referring to its very small size.

Dicranolasmatidae Simon, 1879

Dicranolasma giljarovi Šilhavý, 1966

Dicranolasma giljarovi Šilhavý, 1966a: 153, fig. 14–20; Starega, 1978: 200; Chevrizov, 1979: 9, fig. 31–34; Chemeris, Kovblyuk, 2005: 306, fig. 1–8; Bayram, Çorak, 2007: 9, fig. 1 A–H, 457, fig. 4–5.

Dicranolasma hoberlandti: Starega, 1966: 200.

Material. 2♂, 147♀, 3 juv. (RCNS), yew-beech and Cherry laurel (area 2); 129♂, 176♀, 7 juv. (RCNS), broad-leaved box-tree; 156♂, 238♀, 7 juv. (RCNS), beech/Cherry laurel forest; 222♂, 372♀, 2 juv. (RCNS), 3♂, 3♀ (SMF), yew-beech forest.

Comments. This species has already been mentioned from Krasnodar Region [Šilhavý, 1966a], also it is known from Georgia [Starega, 1966, 1978], Crimea [Chemeris, Kovblyuk, 2005] and Turkey [Bayram, Çorak, 2007; Çorak, Bayram, 2007].

Dicranolasma ponticum Gruber, 1998

Dicranolasma ponticum Gruber, 1998: 513–521, fig. 54–81; Snegovaya, Starega, 2011: 48–49, fig. 1–6.

Dicranolasma giljarovi: Snegovaya, 2004: 308.

Dicranolasma scabrum: Snegovaya, 2004: 308–310, fig. 6–8.

Material. 2♂ (RCNS), yew-beech and Cherry laurel (area 2); 6♂ (RCNS), box-tree forest; 10♂, 6♀ (RCNS), beech/Cherry laurel forest.

Comments. This species noted from Georgia [Gruber, 1998], Azerbaijan [Snegovaya, Starega, 2011] and also from Turkey [Gruber, 1998].

Nemastomatidae Simon, 1872

Giljarovia vestita Martens, 2006

Giljarovia vestita Martens, 2006: 161, 163, fig. 9–10, 13 e–fig.

Material. 2♂, 4♀ (RCNS), yew-beech and Cherry laurel (area 2); 12♂, 11♀ (RCNS), broad-leaved box-tree; 8♂, 6♀ (RCNS), beech/Cherry laurel forest; 3♂, 4♀, 1 juv. (RCNS), yew-beech and Cherry laurel (area 1).

Comments. This species has been described from Krasnodar Region and Georgia [Martens, 2006].

Giljarovia kratochvili Snegovaya, sp. n.

(Fig. 28–36)

Material. Holotype ♂ (ZMMU) and paratype 1♀ (ZMMU), beech/Cherry laurel forest; paratypes: 1♂, 1♀ (ZIN), 1♂, 1♀ (TTU-Z), 1♂, 1♀ (SMF), beech/Cherry laurel forest; 4♂, 4♀ (RCNS), yew-beech and Cherry laurel (area 2); 2♂ (RCNS), broad-leaved box-tree; 5♂, 2♀ (RCNS), beech/Cherry laurel forest; 3♂, 5♀ (RCNS), yew-beech and Cherry laurel (area 1).

Comparative material. *Giljarovia vestita* (material see above).

Description. Male. Body length 1.25–1.9 mm (n=8; holotype 1.3 mm), width 0.7–0.85 mm (n=8; holotype 0.7 mm).

Body quadrangular, widened posteriorly. Body surfaces papillose, precise borders between tergites are not evident. Eye

mound small, covered with large grains. Tergites I–V with a pair of low, small club-shaped tubercles. Ventrum also with grains, borders of coxa and trochanter are bordered with hammer-like denticles. Body dark-brown to black.

Legs short, I and II slightly thickened. Length of legs (mm): I – 0.5–0.7+0.25+0.45–0.5+0.55–0.65+0.55–0.65, total length 2.3–2.75 (n=8); II – 0.6–0.9+0.25–0.4+0.63–0.75+0.7–1+0.7–1, total length 2.88–4.05 (n=8); III – 0.5–0.65+0.25+0.4–0.5+0.6–0.7+0.6–0.75, total length 2.35–2.85 (n=8); IV – 0.7–0.9+0.25–0.35+0.6–0.65+0.85–1+0.61–0.9, total length 3.01–5.05 (n=8).

Chelicera small, segments I with large elongated triangular apophyses with large setae. From the ventral side with long deepening, covered with setae. From dorsal side, segment I laterally with some large denticles. Cheliceral segments 0.5 mm long (I), 0.45 mm long (II), appendage 0.3 mm.

Pedipalps short, femora triangular form, dorso-laterally with wide stridulating field. Patella from mesolaterally with large recurved denticle. All segments covered with pointed and club-shaped bristles. Length of palpal segments: femur 0.45, patella 0.4, tibia 0.38, tarsus 0.2; total length 1.43 mm.

Penis not very long, slender, with stylet-shaped glans and with long bent stylus. Glans covered with small setae.

Female. Body 1.6–1.88 mm (n=8), width 0.8–0.9 mm (n=8). It differs from male by larger size and absence of cheliceral appendages. Length of palpal segments: femur 0.4–0.5, patella 0.35–0.45, tibia 0.3–0.4, tarsus 0.2–0.4 mm (n=6).

Length of legs (mm): I – 0.5–0.63+0.2–0.35+0.4–0.5+0.5–0.6+0.5–0.6, total length 2.1–2.68 (n=7); II – 0.75–1+0.2–0.38+0.5–0.8+0.7–1+0.7–1, total length 2.85–4.18 (n=8); III – 0.5–0.8+0.25–0.3+0.4–0.65+0.6–0.75+0.5–0.75, total length 2.25–3.25 (n=7); IV – 0.75–0.9+0.25–0.3+0.5–0.7+0.8–1+0.7–1, total length 3–3.9 (n=8).

Diagnosis. *Giljarovia kratochvili* sp. n. is unique in the genus for its form of cheliceral apophysis in males – deep elongated depression, covered with setae. Genital morphology of *G. kratochvili* sp. n. is similar to *G. vestita*, but differs from *G. vestita*: in *kratochvili* body is a slightly smaller; legs are shorter and more thick; segments of pedipalps are shorter and more thick; cheliceral apophyses triangular in form, without a rounded concavity, but has deep elongated depression which is densely covered by setae. Other *Giljarovia* species differ in length of stylus of penis, and very different shapes of apophyses in males (Martens 2006), none of them with a glandular pore field positioned in a deep elongated depression.

Etymology. The species named honors the famous Czech harvestman expert, Dr. Josef Kratochvil (1909–1992).

Caucnemastoma martensi Snegovaya, sp. n.

(Fig. 37–47)

Material. Holotype ♂ (ZMMU) and paratype 1♀ (ZMMU), yew-beech and Cherry laurel (area 1); paratypes: 1♂, 1♀ (ZIN), 1♂, 1♀ (TTU-Z), 1♂, 1♀ (SMF), yew-beech and Cherry laurel (area 1); 5♀ (RCNS), yew-beech and Cherry laurel (area 2); 2♂, 4♀ (RCNS), broad-leaved box-tree; 1♂, 6♀ (RCNS), beech/Cherry laurel forest; 1♂, 1♀ (RCNS), yew-beech and Cherry laurel (area 1).

Comparative material. *Caucnemastoma golovatchi*: holotype: ♂ (ZMMU), № 152, Russia, Krasnodar region, pasture Abago near Guzeripl, Caucasian State Reserve, Abies, Fagus, Acer, Betula etc. forest, up to timber line and in subalpine meadows, 1700–1850 m, litter, under bark and stoned, 24–26.05.1985, leg. S. Golovatch. Paratypes: 1♂, 1♀ (ZMMU); № 167, Russia, Krasnodar region, Severskaya distr., Mt. Derby, ca. 15 km SW of Ubinskaya, old Quercus, Fagus, Fraxinus, Alnus etc. forest, litter, 2.07.1986, leg. S. Golovatch; (1♂), (RCNS); Russia, Caucasian State Reserve, 3 km Guzeripl–Abago road, beech-fir forest, 1000 m a.s.l., pitfall traps, 3.05–

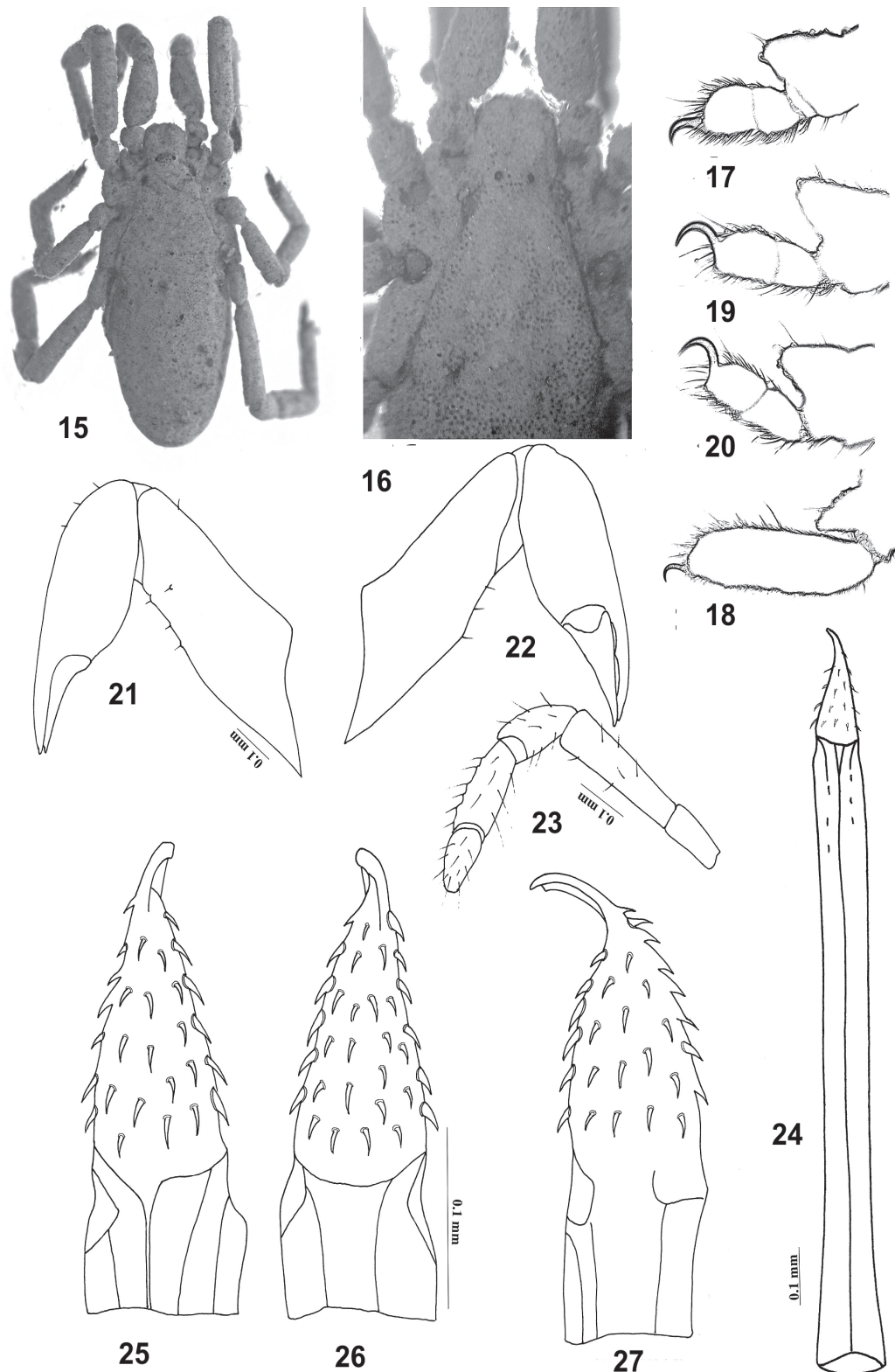


Fig. 15–27. *Calathocratus minutus* Snegovaya sp. n., male.

15–16 – body, dorsal view; 17 – tarsus I, lateral view; 18 – tarsus II, lateral view; 19 – tarsus III, lateral view; 20 – tarsus IV, lateral view; 21 – chelicerae, prolateral view; 22 – chelicerae, retrolateral view; 23 – pedipalp, prolateral view; 24 – penis, dorsal view; 25 – glans of penis, ventral view; 26 – glans of penis, dorsal view; 27 – glans of penis, lateral view.

Рис. 15–27. *Calathocratus minutus* Snegovaya sp. n., самец.

15–16 – тело, дорсально; 17 – лапка I, латерально; 18 – лапка II, латерально; 19 – лапка III, латерально; 20 – лапка IV, латерально; 21 – хелицера, пролатерально; 22 – хелицера, ретролатерально; 23 – педипальпа, пролатерально; 24 – пенис, дорсально; 25 – головка пениса, вентрально; 26 – головка пениса, дорсально; 27 – головка пениса, латерально.

20.05.2009, leg. Yu. Chumachenko.

Description. Male. Body length 2–2.5 mm (n=3; holotype 2 mm), width 1.1–1.3 mm (n=3; holotype 1.1 mm).

Body quadrangular, with hind end slightly inflated and rounded. Body surfaces granulated. Dorsal surface of body with transverse continuous rows of low tubercles. Frontal edge of cephalothorax with 2–3 rows of bifid tubercles. Tergites I–V each with a pair of thin, long and blunt spines. Eye mound small, but appears very large because covered with rows of bifid tubercles. Ventrums covered with grains, borders of trochanter and coxa covered with hammer-like denticles. Body color light-brown to dark-brown.

Legs long, femora I thickened. Femoral pseudosegments (right/left) legs of Holotype: 3(3) – 13(14) – 5(4) – 9(9). Length of legs (mm): I – 1.5–1.7+0.4–0.5+1.1+1.2–1.25+1–1.1, total length 5.2–5.65 (n=3); II – 2.8–3.25+0.5–0.6+2.5–2.7+2.5–2.7+1.4–1.8, total length 9.7–11.05 (n=3); III – 1.75–2+0.5+1–1.25+1.25–1.3+1–1.1, total length 5.5–6.15 (n=3); IV – 2.6+0.5+1.5–1.8+1.8–2.3+1.3, total length 7.7–8.9 (n=3).

Cheliceral segment I with large club-shaped apophysis, about 4–5 times as long as wide, strongly constricted at the base then relatively gradually and parallel sided and evenly rounded at the tip; opening of cheliceral gland in a circular pore filed which is densely covered with long setae; the pore field is situated slightly distal from the centre and faces to the front. Long setae covering all appendages. Dorsally segment I with some denticles, segment II covered with only setae. Laterally segment II (external side) with very large, thorn-like denticles, which have short bifid tips.

Pedipalp relatively long, dark-brown in colour, covered with bristles and setae. Length of palpal segments: femur 0.8–1.1, patella 0.6–1, tibia 0.5–0.75, tarsus 0.4 mm (n=3).

Penis not very long, slender; glans cone-shaped with small stylus. Glans densely covered with long and slender setae.

Female. Differs from male by absence of cheliceral appendages, larger size and more rounded body. Body 1.75–2.55 mm (n=7), width 1–1.4 mm (n=7). Length of legs (mm): I – 0.6–0.75+0.2–0.3+0.4–0.6+0.55–0.6+0.45–0.65, total length 2.2–2.9 (n=7); II – 1.25–1.53+0.25–0.3+0.8–1.25+1.05–1.38+0.7–1.2, total length 4.05–5.66 (n=7); III – 0.7–1.25+0.25–0.3+0.5–0.63+0.6–0.7+0.55–0.7, total length 2.6–3.58 (n=7); IV – 1.1–1.38+0.25–0.3+0.6–0.88+0.9–1.15+0.6–0.9, total length 3.45–4.61 (n=6).

Diagnosis. A species of *Caucnemastoma* Martens, 2006 characteristic for its very long cheliceral apophysis (4–5 times as long as wide) and armature with enlarged denticles on the male chelicerae. *C. martensi* sp. n. differs from the only other species *C. golovatchi* Martens, 2006: in *martensi* cheliceral apophyses longer and narrower than in *golovatchi*, glandular opening (centre of opening) located nearly in mid length versus in upper part in *golovatchi*; in *martensi* glans of penis longer and narrowed with considerable differences in the quantity of denticles; stylus longer; legs thinner, than in *golovatchi*; dorsal thorns of body more slender and elongated, with rounded apexes in *martensi*.

Etymology. The species is named after Dr. Jochen Martens, a well-known German harvestman expert.

Vestiferum funebre (Redikorzev, 1936)

Nemastoma funebre Redikorzev, 1936: 36–37, fig. 5–6, 14; Mkheidze, 1964: 119.

Nemastoma brunneum: Redikorzev, 1936: 35–36, fig. 3–4, 14; Mkheidze, 1964: 118.

Nemastoma (Lugubrostoma) funebre: Staręga, 1966: 391–392, fig. 5.

Nemastoma funebre: Staręga, 1978: 203; Chevrizov, 1979: 14,

fig. 56–58.

Vestiferum funebre: Martens, 2006: 178–180, fig. 18 a–g, 20.

Material. 7♀, 2 juv. (RCNS), yew-beech and Cherry laurel (area 2); 25♂, 34♀, 8 juv. (RCNS), broad-leaved box-tree; 35♂, 83♀, 14 juv. (RCNS), beech/Cherry laurel forest; 18♂, 43♀, 5 juv. (RCNS), yew-beech and Cherry laurel (area 1).

Comments. This species is listed from Georgia [Redikorzev, 1936; Mcheidze, 1964; Martens, 2006] and Krasnodar region [Staręga, 1966, 1978; Martens, 2006].

Mitostoma gracile (Redikorzev, 1936)

Nemastoma gracile Redikorzev, 1936: 39–40, fig. 8–10, 14.

Nemastoma gracile: Roewer, 1951: 150; Mkheidze, 1964: 119.

Mitostoma (Carinostoma) gracile: Staręga, 1966: 394, fig. 8.

Mitostoma gracile: Staręga, 1978: 202; Snegovaya, 2004: 309, 311, fig. 14–19; Snegovaya, Chemeris, 2005: 271–272, fig. 31–35; Martens, 2006: 207–208, fig. 34–35.

Material. 4♂, 3♀ (RCNS), yew-beech and Cherry laurel (area 2); 13♂, 13♀, 5 juv. (RCNS), broad-leaved box-tree; 33♂, 9♀, 5 juv. (RCNS), beech/Cherry laurel forest; 4♂, 2♀, 1 juv. (RCNS), yew-beech and Cherry laurel (area 1).

Comments. This species is widespread in the Caucasus, it was also recorded from Turkey [Martens, 2006].

Phalangiidae Latreille, 1802

Odiellus zecariensis Mkheidze, 1952

Odiellus zecariensis Mkheidze, 1952: 546, fig. 2

Odiellus zecariensis: Mkheidze, 1959: 112; Mkheidze, 1964: 120, fig. 3.

Odiellus zecariensis: Staręga, 1966: 397, fig. 12–14; Staręga, 1978: 213; Chevrizov, 1979: 18, fig. 92–93; Chemeris, Kovblyuk, 2005: 314, fig. 27–33.

Material. 2♂, 12♀, 61 juv. (RCNS), yew-beech and Cherry laurel (area 2); 6♀, 6 juv. (RCNS), broad-leaved box-tree; 4♀, 41 juv. (RCNS), beech/Cherry laurel forest; 3♂, 22♀, 43 juv. (RCNS), yew-beech and Cherry laurel (area 1).

Comments. This species is widespread in the Caucasus, also mentioned from Crimea [Chemeris, Kovblyuk, 2005].

Opilio hemseni Roewer, 1952

Opilio hemseni Roewer, 1952: 512–513, fig. 1a, b.

Opilio reginae: Staręga, 1966: 404–406, fig. 19–21; Staręga, 1978: 227; Chevrizov, 1979: 26, fig. 149.

Homolophus azerbaijanicus: Snegovaya, Staręga, 2008: 15–17, fig. 1–11.

Opilio hemseni: Snegovaya, 2010: 5, fig. 10–19; Snegovaya, Staręga, 2011: 53–54, fig. 17–20.

Material. 3♂, 8♀, 1 juv. (RCNS), yew-beech and Cherry laurel (area 2); 8♂, 21♀, 2 juv. (RCNS), broad-leaved box-tree; 5♂, 2♀, 1 juv. (RCNS), yew-beech and Cherry laurel (area).

Comments. This species is widespread in the Caucasus, also listed from Iran [Roewer, 1952].

Metaplathybunus hypanicus Šilhavý, 1966

Metaplathybunus hypanicus Šilhavý, 1966b: 478–481, fig. 1–10.

Metaplathybunus hypanicus: Staręga, 1978: 220; Chevrizov, 1979: 23, fig. 138–140.

Material. 1♀ (RCNS), yew-beech and Cherry laurel (area 2); 4♀, 8 juv. (RCNS), broad-leaved box-tree; 1♀, 1 juv. (RCNS), beech/Cherry laurel forest; 2 juv. (RCNS), yew-beech and Cherry laurel (area 1).

Comments. This species was described by Šilhavý [1966b] from Krasnodar region and now it is known from Georgia, as well [Staręga, 1978].

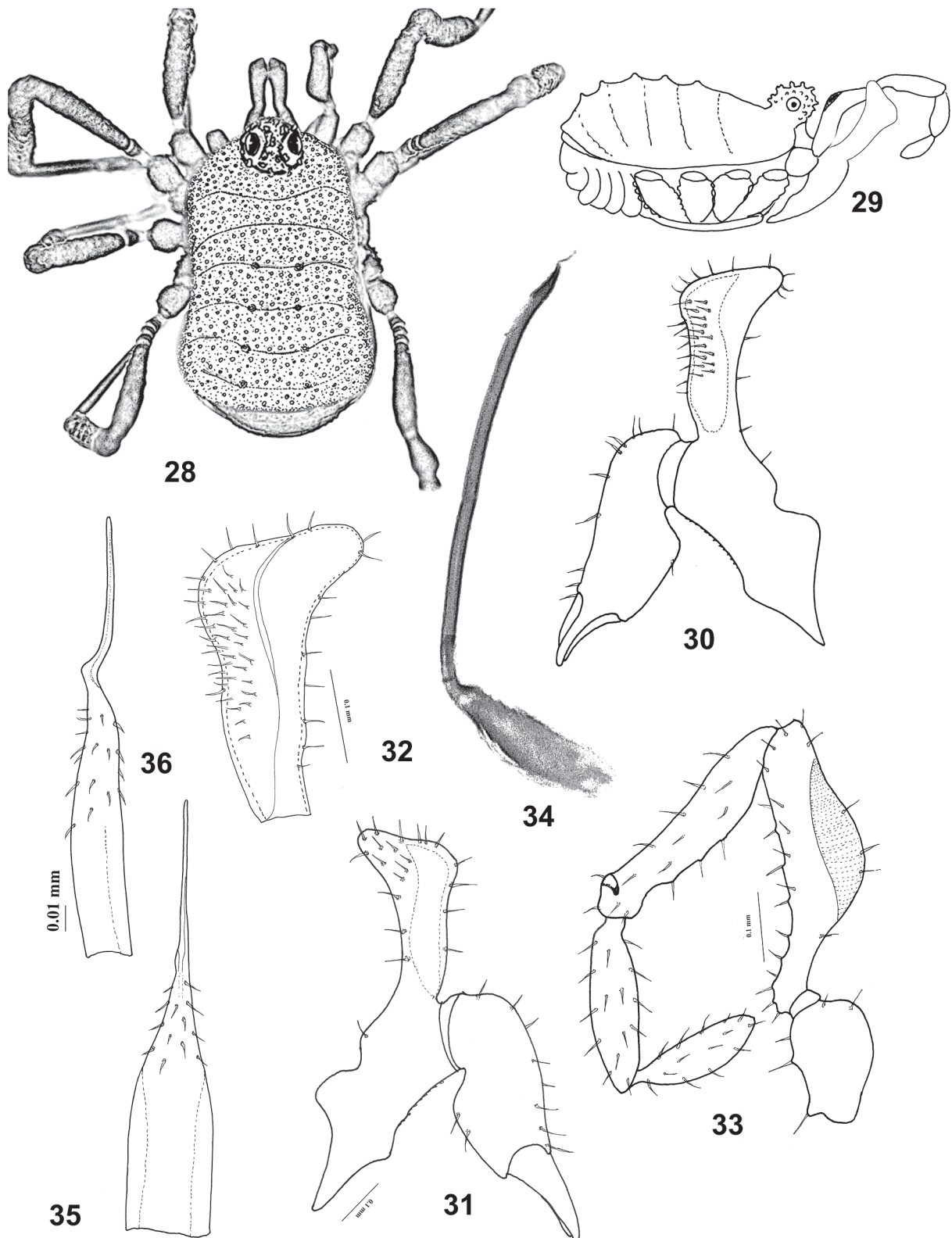


Fig. 28–36. *Giljarovia kratochvili* Snegovaya **sp. n.**, male.
 28 – body, dorsal view; 29 – body, lateral view; 30 – chelicerae, prolateral view; 31 – chelicerae, retrolateral view; 32 – cheliceral apophyses, lateral view;
 33 – pedipalp, prolateral view; 34 – penis, dorsal view; 35 – glans of penis, dorsal view; 36 – glans of penis, lateral view.

Рис. 28–36. *Giljarovia kratochvili* Snegovaya **sp. n.**, самец.
 28 – тело, дорсально; 29 – тело, латерально; 30 – хелицера, пролатерально; 31 – хелицера, ретролатерально; 32 – отросток хелицеры, латерально; 33 – педипальпа, пролатерально; 34 – пенис, дорсально; 35 – головка пениса, дорсально; 36 – головка пениса, латерально.

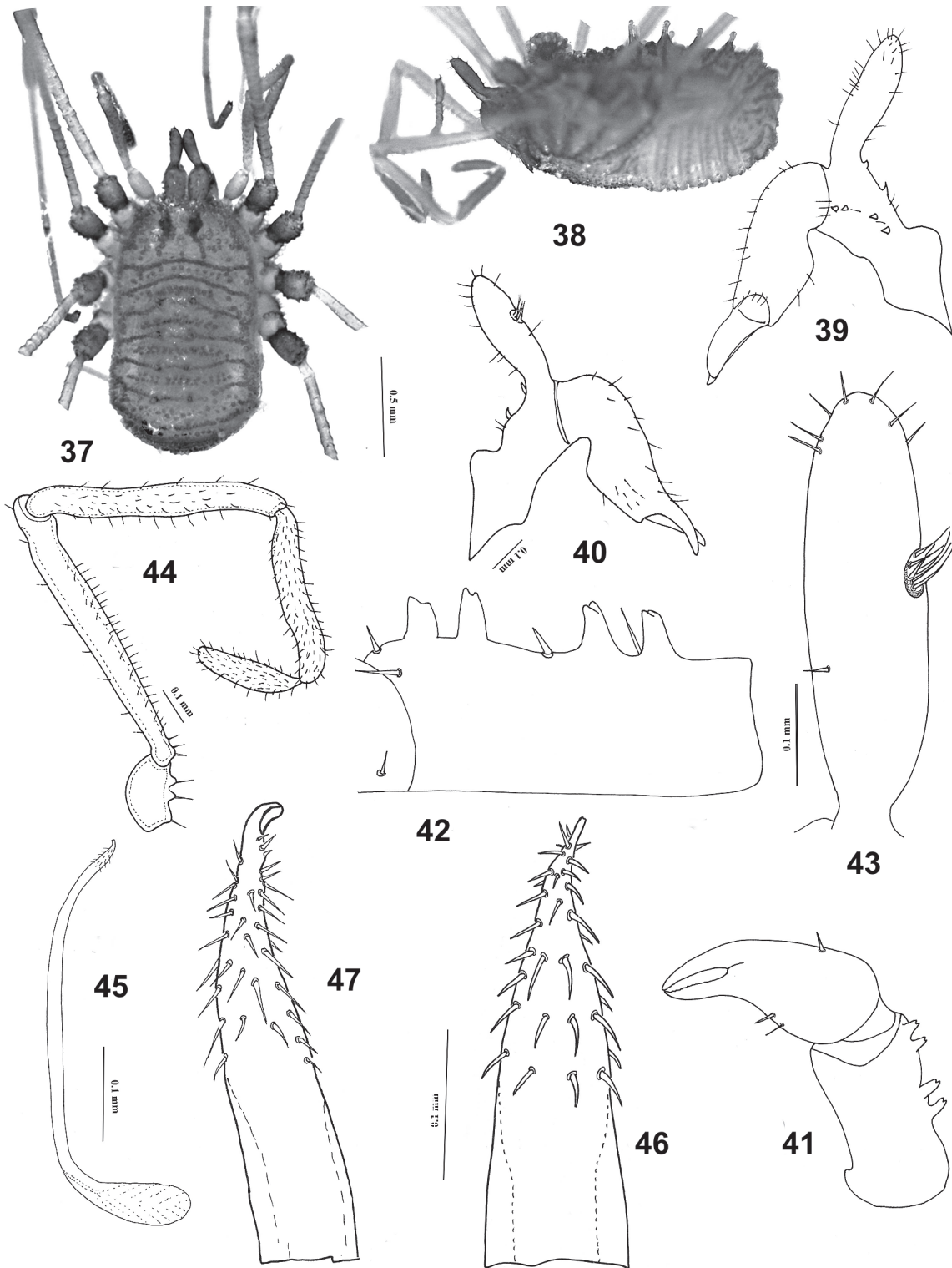


Fig. 37–47. *Caucnemastoma martensi* Snegovaya sp. n., male.
 37 – body, dorsal view; 38 – body, lateral view; 39 – chelicerae, retrolateral view; 40 – chelicerae, prolateral view; 41 – chelicerae, ventral view; 42 – I segment of chelicerae; 43 – cheliceral apophyses, lateral view; 44 – pedipalp, prolateral view; 45 – penis, dorsal view; 46 – glans of penis, dorsal view; 47 – glans of penis, lateral view.

Рис. 37–47. *Caucnemastoma martensi* Snegovaya sp. n., самец.
 37 – тело, дорсально; 38 – тело, латерально; 39 – хелицера, ретролатерально; 40 – хелицера, пролатерально; 41 – хелицера, вентрально; 42 – I сегмент хелицеры; 43 – отросток хелицеры, латерально; 44 – педипальпа, пролатерально; 45 – пенис, дорсально; 46 – головка пениса, дорсально; 47 – головка пениса, латерально.

Rilaena picta (Mkheidze, 1952)

Metaplatybanus pictus Mkheidze, 1952: 613, fig. 1; Mkheidze, 1959: 114; Mkheidze, 1964: 122, fig. 5; Staręga, 1966: 402–403, fig. 18.
Rilaena picta: Staręga, 1978: 217; Chevrizov, 1979: 19, fig. 106–109.

Rilaena zakatalica: Snegovaya, Chemeris, 2005: 273–274, fig. 39–58.

Material. 1♀, 9 juv. (RCNS), yew-beech and Cherry laurel (area 2); 1♂, 10♀, 38 juv. (RCNS), broad-leaved box-tree; 1♂, 5♀, 11 juv. (RCNS), beech/Cherry laurel forest; 2♀, 2 juv. (RCNS), yew-beech and Cherry laurel (area 1).

Comments. This species was described from Georgia [Mkheidze, 1952], and is further mentioned from Azerbaijan [Snegovaya, Chemeris, 2005]. For Krasnodar region it is here recorded for the first time.

Sclerosomatidae Simon, 1879*Nelima pontica* Kharitonov, 1941

Nelima pontica Kharitonov, 1941: 169, fig. 5–6.

Nelima pontica: Birshteyn, 1950: 356; Lyovushkin, Starobogatov, 1963: 49–50, fig. 6; Mkheidze, 1964: 122; Staręga, 1966, 406, fig. 22; Martens, 1969: 412, fig. 53–54, 57; Staręga, 1978: 209; Chevrizov, 1979: 16, fig. 69–70.

Nelima longipedata: Mkheidze, 1952: 615, fig. 3; Mkheidze, 1959: 114; Mkheidze, 1962: 185; Mkheidze, 1964: 122.

Material. 1♂, 2♀ (RCNS), yew-beech and Cherry laurel (area 2); 1♀ (RCNS), yew-beech and Cherry laurel (area 1).

Comments. This species was described and listed many times from Georgia [Kharitonov, 1941; Mkheidze, 1952, 1959, 1962, 1964; Lyovushkin, Starobogatov, 1963; Staręga, 1978] and Krasnodar region [Birshteyn, 1950; Staręga, 1978; Chevrizov, 1979].

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