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Contributions to the knowledge of neuropterid insects (Neuropterida: Raphidioptera, Neuroptera) of Georgia (Sakartvelo). Part II.

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Abstract: The paper analyses materials gathered during fieldwork carried out by the Institute of Entomology, Agricultural University of Georgia, in the Lagodekhi National Park and from expeditions in late June and early July 2017. Of the 50 neuropterid species (694 specimens) collected, the following are new to Georgia: *Phaeostigma (Ph.) notata*, *Dichrostigma malickyi*, *Raphidia (Aserbeidshanoraphidia) nuchensis*, *Chrysopa nigricostata*, *Suaris nanus*, *Micromus lanosus*, *Coniopteryx (Holoconiopteryx) haematica*, *Mantispa scabricollis*, *Myrmeleon hyalinus distinguendus* and *Nicarinus poecilopterus*.

Key words: faunistics, new data, Caucasus, Ascalaphidae, Chrysopidae, Coniopterygidae, Hemerobiidae, Myrmeleontidae, Osmylidae, Raphidiidae.

INTRODUCTION

There are still gaps in our knowledge of Georgian Neuropterida. The little information that exists is to be found in Georgian, Russian and Soviet journals, but linguistically is practically inaccessible. Some of these publications written in Georgian were overlooked entirely, e.g.

SHENGELIJA (1947), who mentions 10 species of lacewings. The first attempts at compiling a list of lacewing species from this country were made in a European monograph covering the group and in a catalogue of Western Palearctic Neuropterida (ASPÖCK *et al.* 1980; ASPÖCK *et al.* 2001). ZAKHARENKO & KRIVIKHATSKY (1993) provided a critical commentary on the list of lacewings from regions formerly belonging to the USSR, including Georgia (39 species). An important contribution to knowledge of Georgian lacewings was made by DUELLI *et al.* (2015), who compiled and compared data from the above-mentioned works by ASPÖCK *et al.* (32 species), and added 31 taxa new to Georgia. If we include the species mentioned by SHENGELIJA (1947) and ZAKHARENKO & KRIVIKHATSKY (1993), overlooked by DUELLI *et al.* (2015), a total of 72 species of lacewings (Neuroptera), 2 species of alder fly (Megaloptera) (Vshivkova 1985) and 4 species of snake fly (Raphidioptera) (ASPÖCK *et al.* 2001) are known from Georgia.

The first summary of the activities of Polish entomologists in Georgia (Sakartvelo) was published earlier this year and included data on the occurrence there of 18 species of lacewings (six new to Georgia). Those materials were collected incidentally during research on other insect groups (DOBOSZ *et al.* 2017).

MATERIAL AND METHODS

The Neuropterida collection, the basis of this paper, is the result of this year's scientific expedition to Georgia, organised by the Department of Entomology and Environmental Protection (Poznań University of Life Sciences) and the Upper Silesian Museum, Bytom, in cooperation with the Institute of Entomology, Agricultural University of Georgia, and members of the Polish Entomological Society. Most of the 694 specimens of Neuropterida (49 species) were collected by the first author. During the daytime, the insects were collected using a standard or a heavy-duty sweep net, while at night large numbers of specimens were attracted to mix light (250V) and black light (8V). The survey was carried out in several localities in the Vashlovani National Park (Shavi Mountains, Minis Kure), around the Dalis Mta [Mts.] Reservoir, the Takhti-Tepha Natural Monument, the Stepantsminda area in the Caucasus at the foot of Mt. Kazbegi (near Borjomi – Borjomi-Kharagauli National Park) and near Vardzia (on the slopes of Mt. Erusheti on the left bank of the River Kura, thirty kilometres from Aspindza).

Particularly interesting material was collected by staff members of the Institute of Entomology, Agricultural University of Georgia, in the Lagodekhi National Park. This is a protected area on the south-eastern slopes of the Greater Caucasus in the Kakheti district of Georgia and is the oldest protected area in the Caucasus (established in 1912). It is covered by old-growth primary mixed forests dominated by oriental beech (*Fagus orientalis*). Only at lower elevations (600–700 m) and near the tree line (2200 m) are other tree species (*Carpinus betulus*, *Quercus* ssp., *Betula* ssp. and *Acer* ssp.) predominant. In the forested area, five small, naturally open sites (forest edges) with dense herbaceous vegetation along an elevational transect from 665 m to 2559 m above sea level were selected for sampling (H1-7). This ecotone was chosen for the survey in order to increase the sampling efficiency of species associated exclusively with forests and meadows. In addition, two further sites were set up above the tree line (in subalpine/alpine areas) (H6, H7). A single Malaise trap was deployed at each site from early spring to the end of the growing season. The samples were collected every 10 days: this resulted in a total of 1080 trap-days, with 190 trap-days at the lowest elevation (665 m) and 130 trap-days at the highest one (2559 m) (ASLAN *et al.*

2017, MUMLADZE *et al.* 2017). Neuropterida were collected at six of the seven locations. No lacewings were present in the Malaise trap at the highest elevation (H7) (Table 1).

All the specimens collected are deposited in the Upper Silesian Museum, Bytom, Poland (USMB). Species new to Georgia are marked with an asterisk.

Table 1. Sampling localities, habitat descriptions, species collected.

Sampling localities	Elevation m	Geographic coordinates	Habitat	Species
H1	665	41°51'08"N 46°17'15"E	Lowland forest	<i>R. (R.) o. iranica</i> <i>Ps. prasinus</i> <i>Ch. ciliata</i>
H2	845	41°51'21"N 46°17'33"E	Mountain forest	<i>R. (A.) nuchensis</i> <i>Ps. prasinus</i>
H3	1345	41°52'17"N 46°18'41"E	Mountain forest	<i>Ph. notata</i> <i>R. (A.) nuchensis</i> <i>N. vittata</i> <i>Chl. pallida</i>
H4	1850	41°52'57"N 46°19'18"E	Mountain forest	<i>Ph. notata</i> <i>M. paganus</i> <i>Ch. perla</i>
H5	1900	41°53'08"N 46°19'26"E	Subalpine forest	<i>X. zdravka</i> <i>M. paganus</i> <i>Ch. perla</i>
H6	2230	41°53'52"N 46°20'01"E	Subalpine meadow	<i>Ph. notata</i> <i>M. lanosus</i> <i>H. elegans</i> <i>Ch. fuscostigma</i> <i>Ch. perla</i>
H7	2559	41°54'22"N 46°20'00"E	Alpine meadow	–

RESULTS

List of species

Raphidioptera

* *Phaeostigma (Phaeostigma) notata* (FABRICIUS, 1781) (Fig. 1)

1♂ – 25.05-04.06.2014 Lagodekhi N.P. 41°52'57"N 46°19'18"E, Malaise trap H4, mountain forest, 1850 m, leg. G. Japoshvili; 1♂ – 23.05-03.06.2014 Lagodekhi N.P. 41°53'52"N 46°20'01"E, Malaise trap H6, subalpine meadow 2230 m, leg. G. Japoshvili; 1♂ – 15-25.06.2014 Lagodekhi N.P. 41°52'17"N 46°18'41"E, Malaise trap H3, mountain forest 1345 m, leg. G. Japoshvili.

The distribution of this species in the Caucasus is not very clear. Specimens, formerly identified as *R. notata* from Georgia (Aphazeti, Bakuriani), were described in 1983 as a new species *Phaeostigma promethei* H. ASPÖCK, U. ASPÖCK, RAUSCH, 1983 (ASPÖCK *et al.* 1983).

A number of localities of this species from Krasnodar Province in the Caucasus were recorded for the first time two years ago (MAKARKIN & SHCHUROV 2015).

The species is widespread in central and northern Europe and in the mountains of southern

Europe (the Pyrenees and also the mountains of the western Balkans); there are also a few localities in Russia (ASPÖCK *et al.* 1991, 2001, MAKARKIN & SHCHUROV 2015).



Fig. 1. *Phaeostigma (Ph.) notata*: a – male, general view; b – genital segments lateral; c – genital segments ventral.

Phaeostigma (Phaeostigma) promethei H. ASPÖCK, U. ASPÖCK & RAUSCH, 1983

3♀ – 28.06.2017, Borjomi 41°49'25.61"N 43°20'53.59"E, 815 m, at light, leg. R. Dobosz.

* *Dichrostigma malickyi* (H. ASPÖCK & U. ASPÖCK, 1964) (Fig. 2)

1♂ – 28.06.2017, Borjomi 41°49'25.61"N 43°20'53.59"E, 815 m, at light, leg. R. Dobosz.

This is the first record of this species outside Turkey, confirming the suggestion in the monograph on snakeflies that it could be present in neighbouring countries (Georgia, Armenia) (ASPÖCK *et al.* 1991). Hitherto known from Turkey, where it ranges from Manisa (the south-westernmost locality) to Sinop (in the north) and Artvin (in the north-east) (CANBULAT 2015).

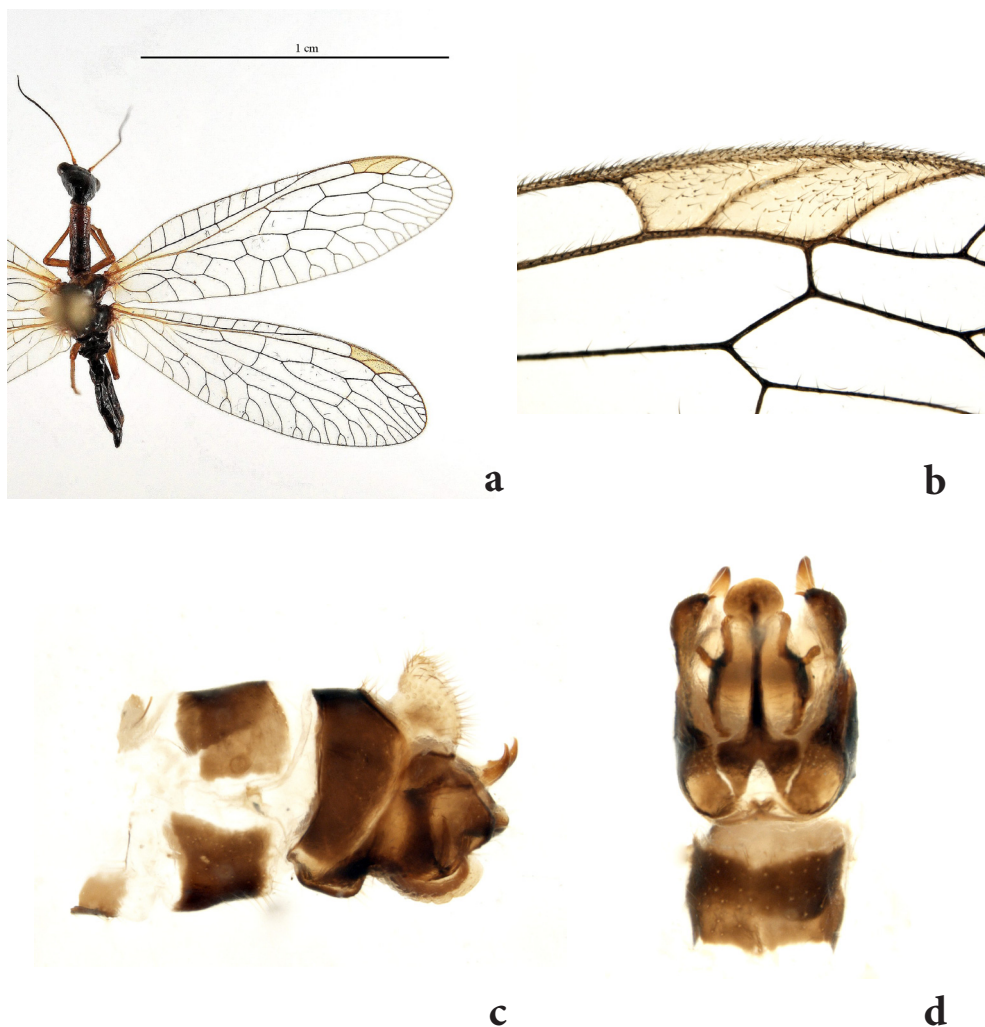


Fig. 2. *Dichrostigma malickyi*: a – male, general view; b – pterostigma; c – genital segments lateral; d – genital segments ventral.

* *Raphidia (Aserbeidshanoraphidia) nuchensis* H. ASPÖCK, U. ASPÖCK. & MARTYNOVA, 1968 (Fig. 3)

1♂ – 4-14.06.2014 Lagodekhi N.P. 41°52'17"N 46°18'41"E, Malaise trap H3, mountain forest 1345 m, leg. G. Japoshvili; 3♂♂ – 25.05-04.06.2014 Lagodekhi N.P. 41°51'21"N 46°17'33"E, Malaise trap H2, mountain forest 845 m, leg. G. Japoshvili.

This is the northernmost locality of this rare species (Fig 4). The subgenus *Aserbeidshanoraphidia* and the only species in it was described on the basis of a single male from Azerbaijan (Nucha [Şəki]) 41°11'31"N 47°10'14"E) (ASPÖCK *et al.* 1968). Also recorded at two localities in Trabzon province in northern Turkey (ASPÖCK *et al.* 1991).



Fig. 3. *Raphidia (Aserbeidshanoraphidia) nuchensis*: a – male, general view; b – genital segments lateral; c – genital segments ventral.



Fig. 4. Distribution of *Raphidia (Aserbeidshanoraphidia) nuchensis*: black circles – bibliographic data; white circle – Lagodekhi N.P.

Raphidia (Raphidia) sp.

1♀ – 15-25.06.2014 Lagodekhi N.P. 41°51'08"N 46°17'15"E, Malaise trap H1, lowland forest 665 m, leg. G. Japoshvili.

Judging by its morphological features, the single female caught most probably belongs to the *R. (R.) iranica* H. ASPÖCK & U. ASPÖCK, 1970 (ASPÖCK & ASPÖCK 1970, 2013). For a definitive identification, a male is needed.

***Xanthostigma zdravka* (POPOV, H. ASPÖCK & U. ASPÖCK, 1978)**

1♂ – 15-25.07.2014 Lagodekhi N.P. 41°53'08"N 46°19'26"E, Malaise trap H5, subalpine forest 1900 m, leg. G. Japoshvili.

Neuroptera

Osmylidae

***Parosmylus elegantissimus* (KOZHANCHIKOV, 1951)**

1♂1♀ – 02.07.2017, netting, road to Vladikavkaz, stream valley near the “Gveleti” camp, 42°42'24.59"N 44°37'24.30"E, 1600 m, leg. R. Dobosz.

Chrysopidae

Hypochrysa elegans (BURMEISTER, 1839)

1♂ – 23.05-03.06.2014 Lagodekhi N.P. 41°53'52"N 46°20'01"E, Malaise trap H6, subalpine meadow 2230 m, leg. G. Japoshvili.

First recorded in Georgia by DUELLI *et al.* (2015).

Italochrysa italica (ROSSI, 1790)

2♂♂3♀♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, netting, leg. R. Dobosz; 10♂♂7♀♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz; 2♀♀ – 26.06.2017, Mijnis Kure 41° 6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park, at light, leg. R. Dobosz.

Records of this species from Georgia (Teliani) were published by Elena SHENGELIA (1947), but they were overlooked in later summaries (ZAKHARENKO & KRIVOKHATSKY 1993, ASPÖCK *et al.* 2001, DUELLI *et al.* 2015). This is because access to her article is limited (it was written in the Georgian language) and the local nature of the journal. In the Caucasus known also from Armenia, Azerbaijan and Turkey (ASPÖCK *et al.* 2001, ZAKHARENKO & KRIVOKHATSKY 1993). This expanding species has a wide distribution: from Portugal in the west to Iraq in the east and from Israel and Lebanon in the south to Romania and Ukraine (Crimea) in the north.

Nineta flava (SCOPOLI, 1763)

1♀ – 04-14.06.2014 Lagodekhi N.P. 41°52'17"N 46°18'41"E, Malaise trap H3, mountain forest 1345 m, leg. G. Japoshvili.

Chrysotropia ciliata (WESMAEL, 1841)

2♀♀ – 15-25.06.2014 Lagodekhi N.P. 41°51'08"N 46°17'15"E, Malaise trap H1, lowland forest 665 m, leg. G. Japoshvili; 1♀ – 28.06.2017, Borjomi 41°49'25.61"N 43°20'53.59"E, 815 m, at light, leg. R. Dobosz.

Chrysopa perla (LINNAEUS, 1758)

1♀ – 05-15.07.2014 Lagodekhi N.P. 41°53'08"N 46°19'26"E, Malaise trap H5, subalpine forest 1900 m, leg. G. Japoshvili; 1♀ – 15-25.06.2014 Lagodekhi N.P. 41°52'57"N 46°19'18"E, Malaise trap H4, mountain forest 1850 m, leg. G. Japoshvili; 1♂ – 15-27.07.2014 Lagodekhi N.P. 41°53'52"N 46°20'01"E, Malaise trap H6, subalpine meadow 2230 m, leg. G. Japoshvili; 2♂♂4♀♀ – 02.07.2017, netting, road to Vladikavkaz, stream valley near the "Gveleti" camp 42°42'24.59"N 44°37'24.30"E, 1600 m, leg. R. Dobosz.

Chrysopa dorsalis BURMEISTER, 1839

1♂ – 29.06.2017, road from Borjomi, 5 km NE of Atskuri 41°45'30.42"N 43°12'40.30"E, netted from *Pinus* sp., leg. R. Dobosz.

Chrysopa fuscostigma ESBEN-PETERSEN, 1933

1♀ – 15-25.06.2014 Lagodekhi N.P. 41°53'52"N 46°20'01"E, Malaise trap H6, subalpine meadow 2230 m, leg. G. Japoshvili.

This species was described by ESBEN-PETERSEN (1933) on the basis of two specimens from Georgia (Bakuriani and Tbilisi). Later recorded elsewhere in the Caucasus (localities not specified) (DOROKHOVA 1979, ZAKHARENKO 1984, 1986) and in Anatolia (Turkey) (ASPÖCK et al. 2001, CANBULAT 2007). Recently recorded near Sochi in Krasnodar Province (Russia) (MAKARKIN & SHCHUROV 2015).

Chrysopa formosa BRAUER, 1850

1♂1♀ – 24.06.2017, near the Dalis Mta [Mts.] Reservoir, gully 41°16'24.08"N 45°52'29.01"E, 300 m, netting, leg. R. Dobosz; 3♀♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, netting, leg. R. Dobosz; 4♂♂5♀♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz; 3♂♂2♀♀ – 26.06.2017, Mijnis Kure 41°6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park, at light, leg. R. Dobosz; 1♀ – 29.06.2017, Vardzia 41°22'8.37"N 43°15'16.34"E, night collecting, near hotel, 1240 m, leg. R. Dobosz.

Chrysopa viridana SCHNEIDER, 1845

1♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz.

* ***Chrysopa nigricostata*** BRAUER, 1851

1♂4♀♀ – 26.06.2017, Mijnis Kure 41°6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park, at light, leg. R. Dobosz.

From the Caucasus known to date from Armenia, Azerbaijan and Ingushetia (ZAKHARENKO & KRIVOKHATSKY 1993, ABRAHÁM 2000).

Pseudomallada flavifrons (BRAUER, 1851)

3♂♂1♀ – 30.06.2017, Vardzia 41°22'8.37"N 43°15'16.34"E, night collecting, near hotel, 1240 m, leg. R. Dobosz.

Pseudomallada inornatus (NAVÁS, 1901)

2♀♀ – 26.06.2017, Mijnis Kure 41°6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park, netting, leg. R. Dobosz.

Pseudomallada prasinus (BURMEISTER, 1839)

1♀ – 25.05-04.06.2014 Lagodekhi N.P. 41°51'08"N 46°17'15"E, Malaise trap H1, lowland forest 665 m, leg. G. Japoshvili. 1♀ – 25.05-04.06.2014 Lagodekhi N.P. 41°51'21"N 46°17'33"E, Malaise trap H2, mountain forest 845 m, leg. G. Japoshvili; 2♀♀ – 15-25.06.2014 Lagodekhi N.P. 41°51'21"N 46°17'33"E, Malaise trap H2, mountain forest 845 m, leg. G. Japoshvili; 1♂4♀♀ – 23.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, meadow, netting, leg. R. Dobosz; 2♂♂4♀♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, netting, leg. R. Dobosz; 2♂♂3♀♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz; 3♂♂5♀♀ – 26.06.2017, Mijnis Kure 41°6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park,

at light, leg. R. Dobosz; 6♂♂9♀♀ – 27.06.2017, Shavi Mountains 41°16'4"N 46°37'45.7"E, 790 m, forest & roadside vegetation, netting, leg. R. Dobosz; 1♂6♀♀ – 27.06.2017, Shavi Mountains 41°16'4"N 46°37'45.7"E, 790 m, at light, leg. R. Dobosz; 2♀♀ – 28.06.2017, Borjomi 41°49'25.61"N 43°20'53.59"E, 815 m, at light, leg. R. Dobosz; 1♂ – 29.06.2017, road from Borjomi, near Atskuri (Atskuri Fortress) 41°43'38.40"N 43°10'1.41"E, ca 900 m, netting, leg. R. Dobosz; 58♂♂109♀♀ – 29.06.2017, Vardzia 41°22'8.37"N 43°15'16.34"E, night collecting, near hotel, 1240 m, leg. R. Dobosz; 2♂♂1♀ – 30.06.2017, near Vardzia, 41°22'31.09"N 43°16'16.19"E, roadside vegetation, 1200 m, netting, leg. R. Dobosz; 4♂♂15♀♀ – 30.06.2017, Vardzia 41°22'8.37"N 43°15'16.34"E, night collecting, near hotel, 1240 m, leg. R. Dobosz; 8♂♂5♀♀ – 02.07.2017, netting, road to Vladikavkaz, stream valley near the "Gveleti" camp 42°42'24.59"N 44°37'24.30"E, 1600 m, leg. R. Dobosz.

Pseudomallada venosus (RAMBUR, 1838)

3♂♂3♀♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz; 1♀ – 29.06.2017, Vardzia 41°22'8.37"N 43°15'16.34"E, night collecting, near hotel, 1240 m, leg. R. Dobosz.

Cunctochrysa albolineata (KILLINGTON, 1935)

1♀ – 29.06.2017, Vardzia 41°22'8.37"N 43°15'16.34"E, night collecting, near hotel, 1240 m, leg. R. Dobosz; 1♂1♀ – 02.07.2017, netting, road to Vladikavkaz, stream valley near the "Gveleti" camp 42°42'24.59"N 44°37'24.30"E, 1600 m, leg. R. Dobosz.

Chrysoperla carnea (STEPHENS, 1836) s.l.

1♂1♀ – 23.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz; 1♂3♀♀ – 24.06.2017, near the Dalis Mta [Mts.] Reservoir, Takhti-Tepha Natural Monument 41°19'59.53"N 45°46'9.44"E ca 550 m, netting, leg. R. Dobosz; 2♀♀ – 24.06.2017, near the Dalis Mta [Mts.] Reservoir, gully 41°16'24.08"N 45°52'29.01"E, 300 m, netting, leg. R. Dobosz; 9♂♂11♀♀ – 24.06.2017, Dalis Hotel, near near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, netting, leg. R. Dobosz; 13♂♂23♀♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz; 1♀ – 26.06.2017, Mijnis Kure 41°6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park, netting, leg. R. Dobosz; 2♂♂6♀♀ – 26.06.2017, Mijnis Kure 41°6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park, at light, leg. R. Dobosz; 3♂♂1♀ – 27.06.2017, Shavi Mountains 41°16'4"N 46°37'45.7"E, 790 m, forest and roadside vegetation, netting, leg. R. Dobosz; 1♀ – 27.06.2017, Shavi Mountains 41°16'4"N 46°37'45.7"E, 790 m, at light, leg. R. Dobosz; 1♂ – 30.06.2017, Vardzia 41°22'8.37"N 43°15'16.34"E, night collecting, near hotel, 1240 m, leg. R. Dobosz.

Species belonging to the *Chl. carnea* s.l. complex are difficult to separate, especially when they are prepared dry (DUELLI pers.com.). Since the group of these species from Georgia has been well researched (DUELLI *et al.* 2015), most of the lacewings caught here are listed within the collective species *Chl. carnea* s.l.

Chrysoperla lucasina (LACROIX, 1912)

1♂5♀♀ – 24.06.2017, near the Dalis Mta [Mts.] Reservoir, gully 41°16'24.08"N 45°52'29.01"E, 300 m, netting, leg. R. Dobosz; 7♀♀ – 24.06.2017, Dalis Hotel, near the

Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz; 2♀♀ – 26.06.2017, Mijnis Kure 41° 6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park, at light, leg. R. Dobosz; 1♂2♀♀ – 29.06.2017, road from Borjomi, near Atskuri (Atskuri Fortress) 41°43'38.40"N 43°10'1.41"E, ca 900 m, netting, leg. R. Dobosz; 3♀♀ – 29.06.2017, Vardzia 41°22'8.37"N 43°15'16.34"E, night collecting, near hotel, 1240 m, leg. R. Dobosz; 1♀ – 30.06.2017, near Vardzia 41°22'31.09"N 43°16'16.19"E, *Salix* sp., river bank, 1200 m, netting, leg. R. Dobosz.

Chrysoperla pallida HENRY *et al.*, 2002

1♀ – 15-25.06.2014 Lagodekhi N.P., Malaise trap H3 41°52'17"N 46°18'41"E, mountain forest 1345 m, leg. G. Japoshvili.

* ***Suaris nanus*** (McLACHLAN, 1893) (Fig. 5)

2♀♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz.

This species is known from Europe (Greece, Macedonia) and from Asia (from Turkey, Iran, Afghanistan as far as Kyrgyzstan in the east and Lebanon at the south-western extremity of its range (ASPÖCK *et al.* 2001).

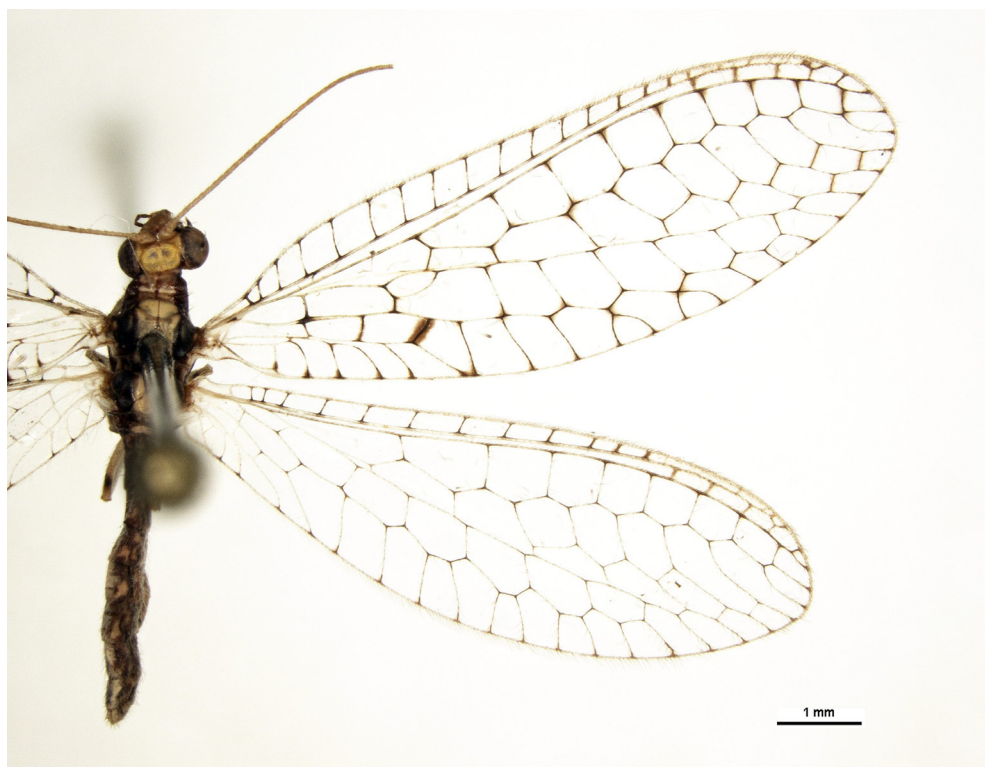


Fig. 5. *Suaris nanus*: female – general view.

Hemerobiidae

Hemerobius humulinus LINNAEUS, 1758

1♂ – 27.06.2017, Shavi Mountains 41°16'4"N 46°37'45.7"E, 790 m, forest & roadside vegetation, netting, leg. R. Dobosz.

Hemerobius micans OLIVIER, 1793

1♀ – 27.06.2017, Shavi Mountains 41°16'4"N 46°37'45.7"E, 790 m, forest & roadside vegetation, netting, leg. R. Dobosz.

Hemerobius lutescens FABRICIUS, 1793

1♀ – 28.06.2017, Borjomi 41°49'25.61"N 43°20'53.59"E, 815 m, at light, leg. R. Dobosz.

Wesmaelius (Kimminsia) nervosus (FABRICIUS, 1793)

3♀♀ – 1.07.2017, near Stepantsminda, Mt. Kazbegi, road to Gergeti Trinity Church 42°39'46.94"N 44°37'22.26"E, ca 1600 m, deciduous trees, netting, woods and meadow, leg. R. Dobosz.

Symphorobius pygmaeus (RAMBUR, 1842)

1♀ – 26.06.2017, Mijnis Kure 41° 6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park, netting, leg. R. Dobosz; 1♂ – 27.06.2017, Shavi Mountains 41°16'4"N 46°37'45.7"E, 790 m, forest & roadside vegetation, netting, leg. R. Dobosz; 4♂♂4♀♀ (in alcohol) – 30.06.2017, near Vardzia 41°22'31.09"N 43°16'16.19"E, roadside vegetation, 1200 m, netting, leg. R. Dobosz (USMB 016/J4).

Micromus paganus (LINNAEUS, 1767)

1♀ – 15-25.07.2014, Lagodekhi N.P. 41°53'08"N 46°19'26"E, Malaise trap H5, subalpine forest 1900 m, leg. G. Japoshvili; 3♀♀ – 15-25.06.2014, Lagodekhi N.P. 41°52'57"N 46°19'18"E, Malaise trap H4, mountain forest 1850 m, leg. G. Japoshvili; 2♂♂ – 25.06-05.07.2014, Lagodekhi N.P. 41°52'57"N 46°19'18"E, Malaise trap H4, mountain forest 1850 m, leg. G. Japoshvili; 1♀ – 1.07.2017, near Stepantsminda, Mt. Kazbegi, road to Gergeti Trinity Church 42°39'46.94"N 44°37'22.26"E, ca 1600 m, deciduous trees, netting, woods and meadow, leg. R. Dobosz.

* *Micromus lanosus* (ZELENÝ, 1962)

1♂1♀ – 15-25.06.2014 Lagodekhi N.P. 41°53'52"N 46°20'01"E, Malaise trap H6, subalpine meadow 2230 m, leg. G. Japoshvili.

This species was first recorded in the Caucasus from Ingushetia (ABRAHÁM 2000), later from the province of Ardahan in Turkey (Posof 41°30'40"N 42° 43'45"E and Göle 40°51'14"N 42°37'37"E) (ARI & KIYAK 2003), and also from a small number of localities in various parts of the Caucasus (Krasnodar, Dagestan, Azerbaijan) (SHCHUROV & MAKARKIN 2013) (Fig. 6). *M. lanosus* was previously known only from Europe (Austria, Bulgaria, Switzerland, Czech Republic, Germany, Spain, France, Lichtenstein, Hungary, Italy, Poland, Romania, Ukraine, Serbia and Slovakia) (ASPÖCK *et al.* 2001, JEDLIČKA *et al.* 2004).

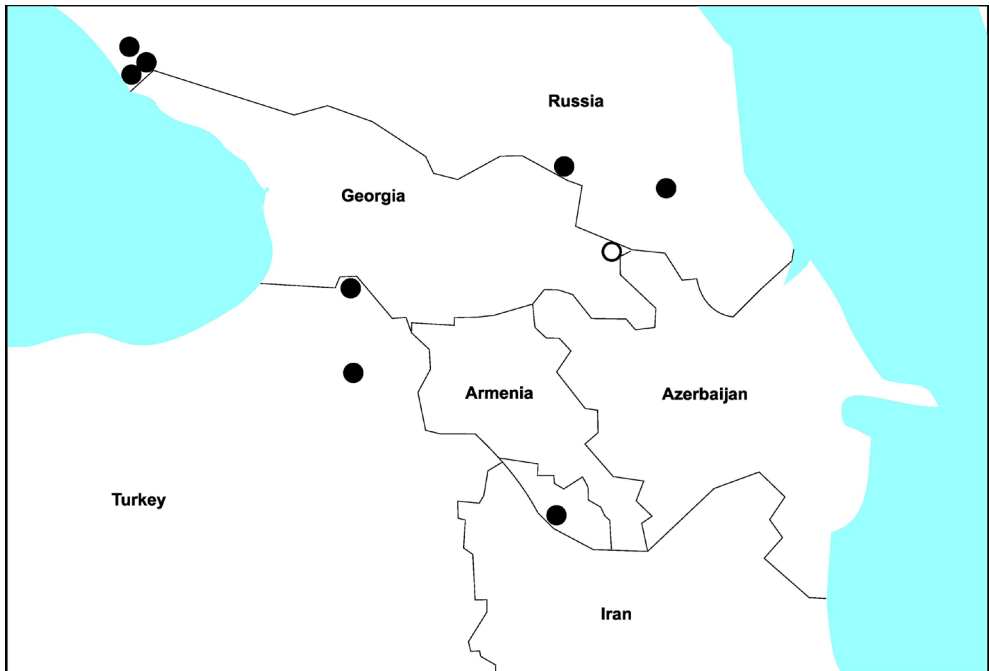


Fig. 6. Occurrence of *Micromus lanosus* in the Caucasus region: black circles – bibliographic data; white circle – Lagodekhi N.P.

Coniopterygidae

Coniopteryx sp.

2♀♀ – 02.07.2017, netting, road to Vladikavkaz, stream valley near the “Gveleti” camp, 42°42′24.59″N 44°37′24.30″E, deciduous trees, 1600 m, leg. R. Dobosz.

Coniopteryx (Coniopteryx) pygmaea ENDERLEIN, 1906

2♂11♀♀ – 28.06.2017, Borjomi 41°49′25.61″N 43°20′53.59″E, *Picea* sp., ca 815 m, Borjomi-Kharagauli National Park, leg. R. Dobosz.

* *Coniopteryx (Holoconiopteryx) haematica* McLACHLAN, 1868

1♂4♀♀ – 26.06.2017, Mijnis Kure 41°6′46.78″N 46°38′53.11″E, ca 100 m, Vashlovani National Park, *Quercus* sp., leg. R. Dobosz.

The Vashlovani National Park is the easternmost locality of this species in its entire range. It is widespread in Europe, and also occurs in Morocco, Cyprus and northern Anatolia (ASPÖCK *et al.* 1980, ASPÖCK & HÖLZEL 1996, SZIRÁKI 2011, ARI 2014).

Semidalis aleyrodiformis (STEPHENS, 1836)

2♂12♀♀ – 26.06.2017, Mijnis Kure 41°6′46.78″N 46°38′53.11″E, ca 100 m, Vashlovani National Park, *Quercus* sp., leg. R. Dobosz.

Mantispidae

Mantispa styriaca (PODA, 1761)

1♂ – 29.06.2017, Vardzia 41°22'8.37"N 43°15'16.34"E, night collecting, near hotel, 1240 m, leg. R. Dobosz; 1♂ – 30.06.2017, Vardzia 41°22'8.37"N 43°15'16.34"E, at light, near hotel, 1240 m, leg. R. Dobosz.

* *Mantispa scabricollis* McLACHLAN in FEDCHENKO, 1875 (Fig. 7)

4♂♂4♀♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz; 1♂ – 26.06.2017, Mijnis Kure 41°6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park, at light, leg. R. Dobosz.

ZAKHARENKO & KRIVOKHATSKY (1993) treat the Caucasus region as including Armenia, Azerbaijan, Dagestan, Georgia, Kabardino-Balkaria, Krasnodar, North Ossetia, Stavropol and Checheno-Ingushetia. Based on Russian reports, the distribution of *M. scabricollis* in the Caucasus should be restricted to Armenia (ZAKHARENKO 1987). This species is known from eastern Greece, Turkey, the Caucasus, Iraq, Iran, Afghanistan, Tajikistan and Turkmenistan (OHL 2004).

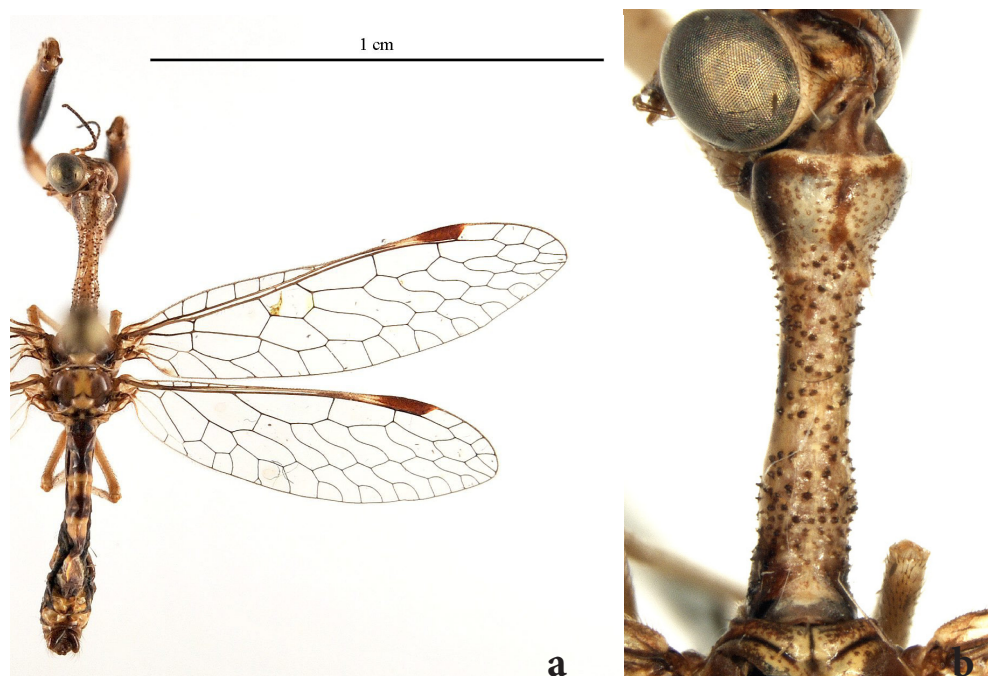


Fig. 7. *Mantispa scabricollis*: a – male – general view; b – pronotum.



Fig. 8. *Sagittalata perla*: Mantidflies, mantis-like, awaiting prey in the praying position.

***Sagittalata perla* (PALLAS, 1772) (Fig. 8)**

1♂ – 15.07.2016, Chumateleti 42°02'18"N 43°30'00"E, valley of the River Suramula, 837 m, leg. Cz. Greń; 30♂♂40♀♀ – 29.06.2017, near Vardzia 41°22'31.09"N 43°16'16.19"E, roadside vegetation, 1200 m, netting, leg. R. Dobosz; 2♂♂7♀♀ – 30.06.2017, near Vardzia 41°22'31.09"N 43°16'16.19"E, roadside vegetation, 1200 m, netting, leg. R. Dobosz.

Specimens of this species were observed quite often to hunt sawfly of the genera *Tenthredo* sp., *Athalia* sp. (Tenthredinidae) and *Arge* sp. (Argidae). Some of the victims were equal to and even larger than *S. perla* in size.

Myrmeleontidae

***Palpares libelluloides* (LINNAEUS, 1764)**

1♂ – 23.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, meadow, netting, leg. R. Dobosz; 1♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz.

P. libelluloides was first recorded in the wider Caucasus region from Georgia: Tbilisi (Mama Daviti), Mtskheta, Tskneti, Dedoplistskaro (former Tseltskaro) (SHENGELIA 1947) and Dagestan (ILYINA & KRIVOKHATSKY 2012). Two closely-related species – *P. libelluloides* and *P. turcicus* – had also been recorded in Azerbaijan (KHABIEV & KRIVOKHATSKY 2014).

Acanthaclisis occitanica (VILLERS, 1789) (Fig. 9)

1♂ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz; 1♂ – 27.06.2017, Shavi Mountains 41°16'4"N 46°37'45.7"E, 790 m, at light, leg. R. Dobosz.

First recorded in the Caucasus from Georgia (Tbilisi – Botanical Garden, Kojori) (SHENGELIA 1947). Later from Ingushetia (ABRAHÁM 2000) and Dagestan (ILYINA & KRIVOKHATSKY 2012). A widely distributed species, recorded from the Pyrenees in the west to around Kazakhstan (Alakol District) in the east, i.e. central and southern Europe, Anatolia, Israel, Azerbaijan, Uzbekistan, Kazakhstan, Tajikistan, Kyrgyzstan, Turkmenistan, Iran, China and North Africa (Egypt, Morocco, Tunisia) (KRIVOKHATSKY 2011).

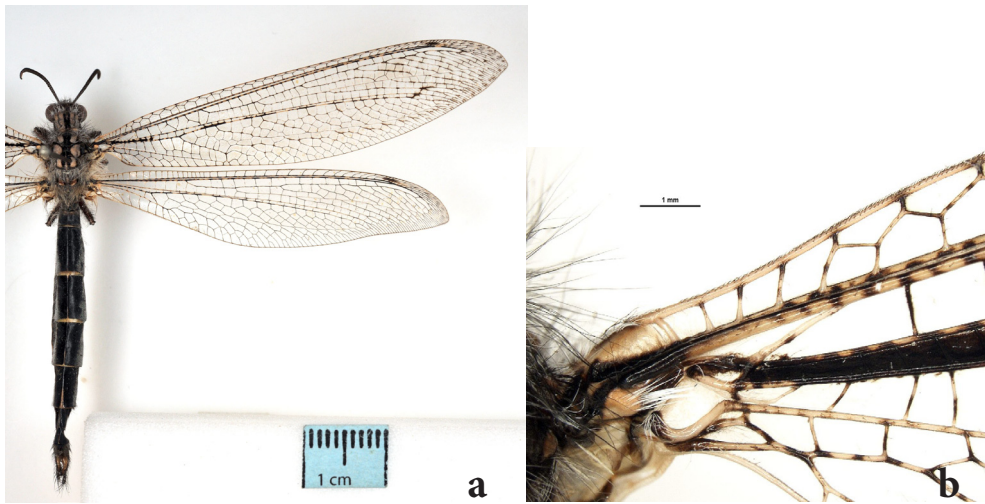


Fig. 9. *Acanthaclisis occitanica*: a – male, general view; b – basal part of costal area of forewings.

Myrmecaelurus trigrammus (PALLAS, 1771)

2♂♂1♀ – 23.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, meadow, netting, leg. R. Dobosz; 2♂♂2♀♀ – 24.06.2017, near the Dalis Mta [Mts.] Reservoir, gully 41°16'24.08"N 45°52'29.01"E, 300 m, netting, leg. R. Dobosz; 2♂♂ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, netting, leg. R. Dobosz; 2♂♂2♀♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz; 1♂1♀ – 26.06.2017, Mijnis Kure 41°6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park, netting, leg. R. Dobosz; 3♂♂1♀ – 26.06.2017, Mijnis Kure 41°6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park, at light, leg. R. Dobosz; 1♂ – 27.06.2017, Shavi Mountains 41°16'4"N 46°37'45.7"E, 790 m, forest & roadside vegetation, netting, leg. R. Dobosz.

Cueta lineosa (RAMBUR, 1842)

1♂4♀♀ – 26.06.2017, Mijnis Kure 41°6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park, at light, leg. R. Dobosz.

* *Myrmeleon hyalinus distinguendus* RAMBUR, 1842 (Fig. 10)

1♂ – 24.06.2017, near the Dalis Mta [Mts.] Reservoir, gully 41°16'24.08"N 45°52'29.01"E, 300 m, netting, leg. R. Dobosz; 3♂♂ – 26.06.2017, Mijnis Kure 41°6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park, at light, leg. R. Dobosz.

Myrmeleon hyalinus has five subspecies whose ranges are neither clearly defined nor designated (STANGE 2004). The three males from Georgia display the greatest similarity to the subspecies *M. hyalinus distinguendus* (RAMBUR, 1842 sensu HÖLZEL, 1987). Comparison with specimens from the collection of the Upper Silesian Museum, Bytom, belonging to three subspecies – *M. hyalinus hyalinus*, *M. hyalinus distinguendus* and *M. hyalinus afganus* – endorses this classification of the specimens from Georgia.



Fig. 10. *Myrmeleon hyalinus distinguendus*: a – male, general view; b – pronotum; c – frons.

Euroleon nostras ESSEN-PETERSEN, 1918

3♀ – 25.06.2017, E of road to Mijnis Kure, viewpoint 41°7'53.97"N 46°37'22.47", 205 m, Vashlovani National Park, ex larva, leg. R. Dobosz; 1♂ – 28.06.2017, Borjomi 41°49'25.61"N 43°20'53.59"E, 815 m, ex larva, leg. R. Dobosz.

Distoleon tetragrammicus (FABRICIUS, 1798)

1♂ – 29.06.2017, Vardzia 41°22'8.37"N 43°15'16.34"E, night collecting, near hotel, 1240 m, leg. R. Dobosz; 1♂ – 30.06.2017, Vardzia 41°22'8.37"N 43°15'16.34"E, at light, near hotel, 1240 m, leg. R. Dobosz.

* ***Nicarinus poecilopterus*** (STEIN, 1863)

1♂ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz.

Species known from Southern Europe, Caucasus, Middle East, Arabian countries, Iran and probably from Northern part of Africa (ASPÖCK *et al.* 2001, KHABIEV & KRIVOKHATSKY 2014). *Nicarinus poecilopterus* (STEIN, 1863) was recorded in the wider Caucasus region from Dagestan (ILYINA & KRIVOKHATSKY 2012), has also been recorded in Armenia and Azerbaijan (KHABIEV & KRIVOKHATSKY 2014).

Creoleon plumbeus (OLIVIER, 1811)

2♂♂2♀♀ – 23.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, meadow, netting, leg. R. Dobosz; 3♂♂2♀♀ – 24.06.2017, near the Dalis Mta [Mts.] Reservoir, Takhti-Tepha Natural Monument 41°19'59.53"N 45°46'9.44"E, 550 m, netting, leg. R. Dobosz; 3♂♂2♀♀ – 24.06.2017, near the Dalis Mta [Mts.] Reservoir, gully 41°16'24.08"N 45°52'29.01"E, 300 m, netting, leg. R. Dobosz; 2♂♂2♀♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz.

Megistopus flavicornis (ROSSI, 1790)

1♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, netting, leg. R. Dobosz; 7♀♀ – 29.06.2017, Vardzia 41°22'8.37"N 43°15'16.34"E, night collecting, near hotel, 1240 m, leg. R. Dobosz; 2♀♀ – 30.06.2017, Vardzia 41°22'8.37"N 43°15'16.34"E, at light, near hotel, 1240 m, leg. R. Dobosz.

Ascalaphidae

Bubopsis hamatus (KLUG, 1834)

2♀♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, netting, leg. R. Dobosz; 2♂♂1♀ – 24.06.2017, Dalis Hotel, near the Dalis Mta [Mts.] Reservoir 41°17'3.43"N 45°54'11.39"E, ca 380 m, at light, leg. R. Dobosz; 2♂♂3♀♀ – 26.06.2017, Mijnis Kure 41° 6'46.78"N 46°38'53.11"E, ca 100 m, Vashlovani National Park, at light, leg. R. Dobosz.

Libelloides macaronius (SCOPOLI, 1763)

1♂ – 29.06.2017, road from Borjomi, 5 km NE of Atskuri 41°45'30.42"N 43°12'40.30"E, netting in meadow, leg. R. Dobosz; 4♂♂1♀ – 29.06.2017, 2 km S of Minadze 41°37'17.91"N 43°3'25.66"E, near Akhaltsikhe, meadows, netting, leg. R. Dobosz.

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