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On the Trichoptera of the Balkan: survey on species complexes of *Polycentropus ierapetra*, *Rhyacophila balcanica*, *R. bosnica* and *Notidobia nekibe*

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Abstract. The Balkan mountain ranges represent the most diverse hot spots of the European biodiversity still very far from being completely explored. Besides new faunistic data here we have described *Drusus gornistok* Oláh, sp. nov. in the *D. discophorus* species complex, surveyed four species complexes and described *Polycentropus maglic* Oláh, sp. nov. , *P. staraplanina* Oláh, sp. nov. in the *Polycentropus ierapetra* new species complex; *Rhyacophila albanica* Oláh & Ibrahimi sp. nov., *R. montenegra* Oláh, sp. nov. , *R. syrikaltera* Oláh & Ibrahimi sp. nov. in the *Rhyacophila balcanica* new species complex; *R. kozara* Oláh, sp. nov. , *R. sarplana* Oláh, sp. nov. , *R. staraplana* Oláh, sp. nov. in the *Rhyacophila bosnica* new species complex; *Notidobia kerkina* Oláh, sp. nov. , *N. koraba* Oláh, sp. nov. , *N. lakmosa* Oláh, sp. nov. , *N. vaillanti* Oláh, Vinçon & Ibrahimi sp. nov. in the *Notidobia nekibe* new species complex. The subspecies status of the following taxa were raised to species rank: *Polycentropus adana* Sipahiler, 1996 stat. nov., *P. anatolica* Sipahiler, 1989 stat. nov., *P. dirfis* Malicky, 1974 stat. nov., *P. ikaria* Malicky, 1974 stat. nov., *P. isparta* Sipahiler, 1996 stat. nov., *P. kalliope* Malicky, 1976 stat. nov., *P. septentrionalis* Kumanski, 1986, stat. nov., *P. slovenicus* Malicky, 1998 stat. nov.

Keywords. Trichoptera, Balkan Mountains, species complexes, new species, biodiversity hotspot.

INTRODUCTION

In this paper we have elaborated all of our set aside caddisfly specimens collected during the last few years mostly in the Balkan Mountain ranges with fewer specimens from the Carpathians. Applying the principles and more sophisticated procedures of fine phenomics and focusing on speciation traits of paraproct and/or phallic organ we have enlarged our resolution capacity and realised that our set aside specimens of *Rhyacophila balcanica* and *Rhyacophila bosnica* represent undescribed new incipient sibling species forming new species complexes. Similarly, we have established the *Polycentropus ierapetra* and *Notidobia nekibe* new species complexes and re-examined all the known species and furthermore described altogether 13 species new to science.

MATERIAL AND METHODS

Most of the specimens were collected by net or umbrella sweeping and all of the specimens are kept in 70 percent alcohol. To apply the principles and procedures of fine phenomics in order to find the first signatures of reproductive isolation in species complexes, to search species boundaries, to delimite closely related incipient taxa, and to

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recognize the young phylogenetic species we have cleared and carefully cleaned the genitalia of all of the available specimens. Each specimen were cleared in 10 percent of hot, not boiling sodium hydroxide and the duration of digestion process is adjusted individually to the effectiveness of clearing process. The dissolution rate depends on the species or even on the particular specimens having different nutritive state or physiological condition of the tissues. The digestion state can be easily followed by tissue transparency. Dissolution rate of the soft tissues, the clearing transparency, is clearly visible by naked eye. The remnant macerated tissue was carefully removed mechanically by fine-tipped forceps and needles. The genital structures were traced using a drawing tube mounted on a WILD M3Z microscope.

Depositories. (1) Department of Biology, Faculty of Mathematics and Natural Sciences, University of Prishtina, Prishtina, Kosovo (DBF MNSUP). (2) Hungarian Natural History Museum, Hungary (HNHM). (3) National Museum, Prague, Czech Republic (NMPC) and the (4) Oláh Private Collection, Debrecen, Hungary, under national protection by the Hungarian Natural History Museum, Budapest (OPC).

TAXONOMY

Philopotamidae Stephens, 1829

Philopotamus montanus Donovan, 1813

Material examined. **Albania**, Delvina Region, between Bistrica Village and Syri i Kaltër, 127 m, N39°55'53" E020°09'13", 13.V.2017, leg. S. Beshkov & A. Nahirnic (4 males, OPC). **Romania**, Vâlcea county, Parâng Mts, Obrâşia Lotrului, open spring area, 500 m along Transalpina (67C) road, downstream from N45°22'27.7", E23°39' 4.0", 1915 m, 30.VI.2016, leg. J. Oláh & J. Oláh jr. (5 males, 2 females; OPC). Apuseni Mts., Vladeasa Mt., Stâna de Vale, upper section of Ciripa stream, N46°40.546' E22°38.515', 1360 m, 6.VII.2016, leg. J. Kecskés (3 males, 2 females; OPC).

Remarks. Fully pigmented adult male from Albania, Delvina Region with uniform brown wings without any dark brown pattern.

Philopotamus variegatus Scopoli, 1763

Material examined. **Romania**, Vâlcea county, Parâng Mts, Obrâşia Lotrului, open spring area, 500 m along Transalpina (67C) road, downstream from N45°22'27.7", E23°39'4.0", 1915 m, 30.VI. 2016, leg. J. Oláh & J. Oláh jr. (5 males, OPC).

Wormaldia carpathica Oláh, 2019

Material examined. **Serbia**, Pčinja district, Vranje municipality, Besna Kobila Mts, forest brook along Ruski Put, 1460 m, N42.53206°, E22.20277°, 25.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (2 male, 3 females; OPC). Pčinja district, Vranje municipality, Besna Kobila Mts, open brook S of Planinarski dom, 1600 m, N42.52929°, E22.19760°, 25.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (1 male, OPC). Pirot district, Pirot municipality, Stara Planina, forest seeps N of Jelovica, 950 m, N43.23212°, E22.84662°, 24.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (9 males, 8 females; OPC). Zaječar district, Knjaževac municipality, Stara Planina, forest brook E of Mt. Babin zub, 1535 m, N43.38057°, E22.63269°, 23.IX.2021, leg. T. Kovács (3 males, OPC).

Remarks. This widely distributed species was described from Albania, Bulgaria, Czech Republic, Hungary, Macedonia, Poland, Romania, Slovakia, Ukraine, that is from all the mountain ranges of the Carpathians and part of the Balkan. These are the first records from Serbia.

Psychomyiidae Walker, 1852

Tinodes braueri McLachlan, 1878

Material examined. **Albania**, Delvina Region, between Bistrica Village and Syri i Kalter, 127 m, N39°55'53"; E020°09'13", 13.V.2017, leg. S. Beshkov & A. Nahirnic (3 males, OPC).

***Tinodes erato* Malicky, 1976**

Material examined. **Albania**, Gjirokastër county, Tepelenë municipality, Kurvelesh, Gurrit Stream E of Progonat, 1025m, N40°12.625' E19° 58.108' leg. P. Juhász, T. Kovács, D. Murányi, 29.VI.2018 (3 males, 5 females; OPC).

***Tinodes pallidulus* McLachlan, 1878**

Material examined. **Bulgaria**, Eastern Rhodopi Mts, Borovitza Valley, between Duzhdovnitza and Pudartzi, 359m, N41.68591°; E25.282159° 13.VI.2018, S. Beshkov, B. Zlatkov, R. Bekchiev leg. (5 males, OPC).

***Tinodes unicolor* Pictet, 1834**

Material examined. **Albania**, Korçë county, Kolonjë municipality, Leskovik, roadside spring W of the town, 575 m, N40.14503° E20.57265°, 30.IV.2021, leg. T. Kovács, D. Murányi, P. Olajos (1 male, OPC).

Polycentropodidae Ulmer, 1903

***Plectrocnemia brevis* McLachlan, 1871**

Material examined. **Bulgaria**, W. Stara Planina Mts, between Kopilovtsi and Kopren, N43.3338°, E22.8641°, 843m, 11.IX.2021, leg. S. Beshkov & A. Nahirnić-Beshkova (1 male, OPC).

***Plectrocnemia geniculata* McLachlan, 1871**

Material examined. **Macedonia**, Pelister Mts, Planinarski Dom „Shiroka", 1955m, N41°00'17"; E21°10'07", 6.VIII.2016, leg. S. Beshkov & A. Nahirnic (1 male, OPC).

***Polycentropus excisus* Klapálek, 1894**

Material examined. **Albania**, Korca Region, Dardha, 1276m, N40°31'34"; E020°49'33", 26. VI.2017 meadow near stream with *Salix, Fagus* forest and hill with *Astragalus*, lamps, light traps leg. S. Beshkov & A. Nahirnic (1 male, OPC). Albania, Delvina Region, between Bistrica Village and Syri i Kalter, 127 m, N39°55'53"; E20° 09'13"13.V.2017, leg. S. Beshkov & A. Nahirnic (3 males, OPC).

***Polycentropus ierapetra* species complex**

Polycentropus ierapetra Malicky, 1972 was described and delineated by the genital structure, actually by the bilobate structure of the gonopod lateral profile with declared similarity to *P. excisus* Klapálek, 1894, *P. intricatus* Morton, 1910, *P. schmidi* Novák & Botosaneanu, 1965, and particularly to *P. corniger* McLachlan, 1884. The *Polycentropus* Curtis, 1835 genus is very diverse in the Neotropical, Nearctic and Palaearctic fauna regions, represented by 15 species in the Australasian faunal region, and only by two species both in the Afrotropical and Oriental fauna regions. There are four basic types of gonopods in lateral profile observed in lateral view: (1) Elongated monolobate with basodorsal small structures present in the Palaearctic, Nearctic, Neotropical, Afrotropical, Oriental and dominating in the Australasian faunal region. (2) Elongated monolobate with small apicoventral structures, present in the Nearctic and Neotropical faunal regions. (3) Abbreviated regular monolobate very frequent in the Nearctic and Neotropic faunal regions. (4) Abbreviated bilobate gonopod with variously organized lobes.

Based on the character state of the bilobate gonopod in this survey we delineate *Polycentropus ierapetra* species complex by relying on the list of Malicky (1998, 2004): *adama*, *anatolica*, *baroukus*, *dirfis*, *ikaria*, *isparta*, *kalliope*, *septentrionalis*, *slovenica*, adding to the complex four known: *corniger*, *ichnusa*, *milikuri*, *djaman* and two new species: *P. maglic* sp. nov., *P. staraplanina* sp. nov. However, there are many and variously incongruent or transient character states in the lateral profile of the gonopod in the *Polycentropus* genus resulted in chimeric composition and created by retigeny or dictiogeny. Therefore, the present list, like any classification is artificial. There are a good number of *Polycentropus* species in the Palaearctic region with similar bilobate gonopod requiring future studies in relation to the *Polycentropus ierapetra* species

complex: *armeniacus*, *cianficconiae*, *divergens*, *excisus*, *flavostictus*, *kingi*, *mazdacus*, *pirisinui*, *radaukles* and *schmidi*.

In most genera and species in the Polycentropodidae family the segment X is membranous and the sclerotized fused complex of cerci and paraproct dominates over the genital structure, frequently exhibiting high diagnostic value. Compared to gonopods the character state of the plesiomorphically bilobate paraproct, being frequently the speciation trait and therefore the most diverse genital structure in the family, has more important function in speciation processes and higher diagnostic value in delineation of incipient species. The plesiomorphic character state of the paraproct is characterized by well produced dorsal and ventral branches. In apomorphic character state the ventral branches could be vestigial, completely lost or in opposite much produced giving a ventral support for the phallic organ (Oláh & Johanson 2010).

In this species complex most species listed by Malicky (1998, 2004) with bilobate gonopod character state have both the dorsal and ventral branches of the heavily sclerotized paraproct well produced preserving the plesiomorphic character state of the paraproct structure. However, in a few species, including unfortunately the nominate species *Polycentropus ierapetra* the ventral branch of the paraproct is highly reduced or completely vestigial.

Polycentropus ierapetra has the apomorphic bilobate character state of gonopod together with the apomorphic character state of paraproct having almost completely lost ventral branches, similarly to many more species among the Palaearctic members of the *Polycentropus* genus with variously bilobate apomorphic lateral profile of gonopod accompanied by incomplete apomorphic paraproct that is without ventral branches; *armeniacus*, *corniger*, *djaman*, *excisus*, *ichnusa*, *ierapetra*, *kingi*, *mazdacus*, *pirisinui*, *radaukles*, *schmidi*, *septentrionalis*, *staraplanina* sp. nov. Frequently there is an internal spine or digitate process, as a neoformation on various parts of the mesal surface of the cercus having no paraproctal origin. This variously sclerotized structure may be confused with the ventral branches of the paraproct. In this survey we do not investigate these species. Their study is reasonable to combine with *Polycentropus* species from other faunal regions, including the species rich Nearctic and Neotropical regions.

Here we examined the species listed by Malicky (2004) as subspecies or closely related species to *Polycentropus ierapetra*. Unfortunately most of the species listed as subspecies of *P. ierapetra* are highly diverged from the nominal species having complete plesiomorphic paraproct with well produced dorsal and ventral. Among the examined taxa the ventral branch is lacking only at *P. corniger*, *P. djaman*, *P. ichnusa*, *P. ierapetra*, *P. septentrionalis* and *P. staraplanina* sp. nov. Subspecies and races have been already taken out from science (Oláh *et al.* 2018) therefore here we raise the subspecies to species rank.

Polycentropus adana **Sipahiler, 1996 stat. nov.**

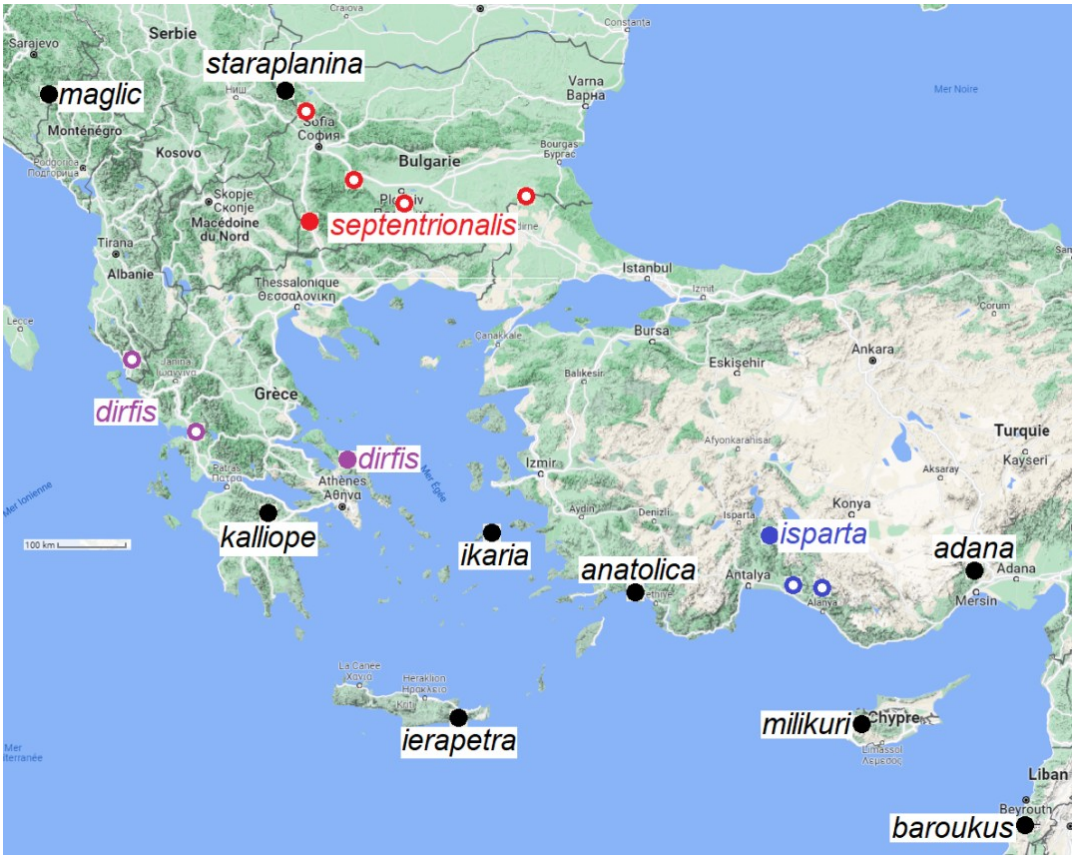
(Map 1)

Polycentropus ierapetra adana ssp. nov. Sipahiler, 1996:301–302: „Holotype ♂ and paratype ♂: Turkey, Adana, Çamliyayla, Daripinari köyü, 1000 m, 23.4.1993; same place, 20.5.1993 1 ♂; leg. Sipahiler, holotype in ZSM., paratypes in my collection." „*P. i. adana* ssp. nov. is closely related to *P. i. isparta* ssp. nov. and well characterized by the shape of the curved and long intermediate appendages and inner basal projections, of which the dorsal branches are also long and pointed at the tips."

Polycentropus anatolica **Sipahiler, 1989 stat. nov.**

(Map 1)

Polycentropus ierapetra anatolica ssp. nov. Sipahiler, 1998:132134: „Holotype ♂ and paratype ♂: Turkey, Muğla, 10 km to Dalaman, 36°20'N 36°44'E, 17.5.1987 leg. and coll. Sipahiler." „This new subspecies of *P. ierapetra* differs from all the other subspecies in the shape of the inferior appendages."



Map 1. Distribution of the new *Polycentropus ierapetra* species complex in the Balkan and in Turkey. **(**Filled circle represents type locality)

Polycentropus baroukus Botosaneanu & Diaz, 1983

(Map 1)

Polycentropus baroukus Botosaneanu & Diaz, 1983: 131–132: Lebanon: „Matériel. Holotype ♂ et allotype ♀ (avec 17 paratypes ♂ et 6 paratypes ♀), station 6: Nabaa Aazibi (torrent Jezzîne) du Nahr el Aouali; Massif de Niha, altitude 900 m, 22.VI. 1981. 43 paratypes ♂ et 12 paratypes ♀ des stations 1,2,3,5,6,7,8, à des dates diverses."

Polycentropus corniger McLachlan, 1884

(Map 2)

Polycentropus corniger McLachlan, 1884:53-54: „Portugal (near Villa Real, Traz-os-Montes, 21rd June, Eaton, 5♂, 8♀); French Pyrenees (near Quillan, Aude, 8th July, Eaton, 1♂)."

Polycentropus dirfis Malicky, 1974 stat. nov.

(Map 1)

Polycentropus ierapetra dirfis Malicky, 1974a:18–19: „Holotypus ♂: Graecia, Insel Eu böa, Dirfis, 500 m, 28.5.1973, leg. Aspöck, Rausch und Ressl; in coll Malicky." „Die Form der unteren Anhänge ist wie bei ssp. *ikaria*. Hingegen ist der Innenteil der oberen Anhänge, der ebenfalls nach unten gebogen ist, viel breiter. Die Präanalsklerite sind im basalen Teil stark blasenförmig erweitert, und der stark abgeknickte Distalteil ist viel länger als bei den anderen beiden bekannten Unterarten. Das 10. Segment hat in Dorsalansicht weit ausladende Distalecken."

Polycentropus ierapetra euterpe Malicky, 1976:94: „Die Form der unteren Anhänge ist wie bei den sspp. *ikaria* und *dirfis* (Malicky & Kumanski 1974), die Präanalsklerite sind hingegen wie bei der Nominatform, doch sind der basale und distale Teil

(d.h. vor und nach dem Knick) gleich lang. Charakteristisch für die ssp. *euterpe* sind: Innenteil der oberen Anhänge sehr lang, schmal und stark nach unten gebogen (noch starker als bei ssp. *ikaria*); ihr Außenteil ist ziemlich kurz und stumpf, der Dorn an der Innenseite ihrer Oberkante sehr klein."

Polycentropus ieropetra euterpe Malicky, 1976: Malicky 1998: „Die Merkmale von *P. ierapetra dirfis* und *P. ierapetra euterpe* erwiesen sich als innerhalb der Variationsbreite der Populationen liegend; *euterpe* Malicky, 1976 ist daher ein Synonym von *dirfis* Malicky, 1974 (n. syn.)."

Material examined. **Albania**, Delvina Region, between Bistrica Village and Syri i Kalter, 127 m, N39°55'53"; E20°09'13"13.V.2017, leg. S. Beshkov & A. Nahirnic (3 males, OPC). **Greece**, 3 km NE Loutro, N38.97 E21.2, 40 m, 30.VII.2007, leg. M. Bálint (11 males, OPC).

Polycentropus djaman Martynov, 1927

(Map 2)

Polycentropus djaman Martynov, 1927:182–183: **Kazakhstan**, „2 pupae (one pupa with ♂ imago). Torrent Karaba-tau, East Karatau, 25–30.VI.24, A. Martynov; Larva. Torrent Ak-Tash, 15.VI.24, O. Martynova." „In the structure of the 10-th segment *P. djaman* resembles *P. flavomaculatus* Pict. and *P. flavistictus* Hag.; preanal appendages appear to be peculiar (dentiform process), but in their large size they remind those in *P. flavostictus* of *P. corniger* McLachl. Pedes genitals are short, as, fore instance, in *P. flavostictus* but excised, somewhat resembling those in *P. corniger*. Thus, this species is distinct, in some features resembling such Mediterranean species, as *P. flavostictus* (Madeira) and *P. corniger* (Portugal, Pyrenees)."

Polycentropus ichnusa Malicky, 1974

(Map 2)

Polycentropus ichnusa Malicky, 1974:229–230: Holotypus ♂: „Sardinien", leg. Krausse, coll Zool Museum, Berlin." „Kopulationsapparat: Ähnlich wie bei *P. corniger* und *P. ierapetra* mit massiven, kompakten unteren Anhängen, die an der oberen Leiste stark sklerotisiert und pigmentiert sind."

Polycentropus ierapetra Malicky, 1972

(Map 1)

Polycentropus ierapetra Malicky, 1972:32–33: **Greece**, „Holotypus ♂: Kreta, Ierapetra, 18.4.1971, leg. Malicky. Allotypoid ♀ und einige Paratypoide vom selben Ort vom 13.5.1971 und von vier weiteren kretischen Fundorten. Alle in meiner Sammlung." „Diese Art ist durch die ♂ Genitalstructuren, besonders durch die Form der gonopoden, sehr gut charakterisiert und mit keiner anderen bekannten europäischen Art verwechselbar. Aehnlichkeiten bestehen mit *P. excisus* Klap. (Botosaneanu, 1960a), *P. intricatus* Mort. (Morton, 1910), und *P. schmidi* Novák und Botosaneanu (1965), aber am nächsten ist sie sichtlich mit *P. corniger* McL. (McLachlan 1874-80) aus Spanien verwandt."

Polycentropus ikaria Malicky, 1974 stat. nov

(Map 1)

Polycentropus ierapetra ikaria n. ssp. Malicky, 1974a:18. „Holotypus ♂, Allotpus ♀ und mehrere Paratypen: Graecia, Insel Ikaria, Mileopo-Monokampion, 280–650 m, 22.5.1973, leg. Aspöck, Rausch und Ressl; alle in coll. Malicky." „Von den kretischen Nominatform (Malicky, 1972) unterscheidet sich ssp. *ikaria* durch die Proportionen verschiedener Teil des ♂-Kopulationsapparates. An der unteren Anhängen ist, seitlich gesehen, der ventral Teil viel massiver als der dorsale. Der Innenteil der oberen Anhänge, der bei den Kretern ein kurzes Dreieck ist, ist bei *ikaria* lang, schmal und sensenförmig nach unten gebogen. Die Präanalsklerite, bei der Nominatform gebogen und im Endteil nach außen-unten geschwungen, sind bei *ikaria* gerade, und nur der kurze Endteil ist etwa 90° nach außen gebogen. Das 10. Segment ist, von dorsal gesehen, rechteckigparallel."

Polycentropus isparta Sipahiler, 1996 stat. nov

(Map 1)

Polycentropus ierapetra isparta ssp. nov. Sipahiler, 1996:301–302: „Holotype ♂ and paeratypes (1♂, 1♀): Turkey, Isparta, Sütçüler, Yazili Kanyon (at light), 30.5.1993; Antalya, Gündogmus, Güneycik Köyü, Alara Çayi, 11.8.1993 1♂; Antalya, Akseki,

Map 2. Distribution of the new *Polycentropus ierapetra* species complex outside Balkan and Turkey

Ibradi, Handost mevkii, Manavgat Çayi, (at light), 1♂, 1♀; leg. Sipahiler, holotype in ZSM, paratypes in my collection."

Polycentropus kalliope Malicky, 1976 stat. nov.

(Map 1)

Polycentropus ierapetra kalliope n. ssp. Malicky, 1976:94. „Holotypus ♂ und Paratypen: Griechenland, Peloponnes, Karterion, 25.7.1974; Paratypen auch von Kefalarion, 26.7.1974. Alle leg et coll. Malicky." „Von allen bischer bekanten Unterarten unterscheidet sich diese dadurch, daß der lange, schmale Innenteil der oberen Anhänge nach oben gebogen ist. Die Präanalsklerite sind schlank und spitz und in den Proportionen wie bei ssp. *euterpe*. Der Außenteil der oberen Anhänge ist kurz dreieckig, der Dorn innen an der Oberkante sehr klein. Der obere Teil der unteren Anhänge ist relative flach und nich so stark nach dem unten gerümmt wie bei den anderen bekannten Unterarten."

Polycentropus maglic Oláh, sp. nov.

(Figures 1–4, Map 1)

Material examined. Holotype: **Bosnia & Herzegovina**, Maglic Mountains, Sutjeska National Park, 1–2.IX.1988, leg. J. Oláh (1 male, OPC). Paratype: same as holotype (1 male, OPC).

Diagnosis. This new sibling species in the *Polycentropus ierapetra* species complex having paraproct complete with dorsal and ventral branches has resemblance to *Polycentropus slovenicus* Malicky, 1998, but differs by the longer and slender ventral branch of the paraproct and the bilobate lateral profile of the gonopod has the dorsal lobe shorter, not longer than its ventral lobe.

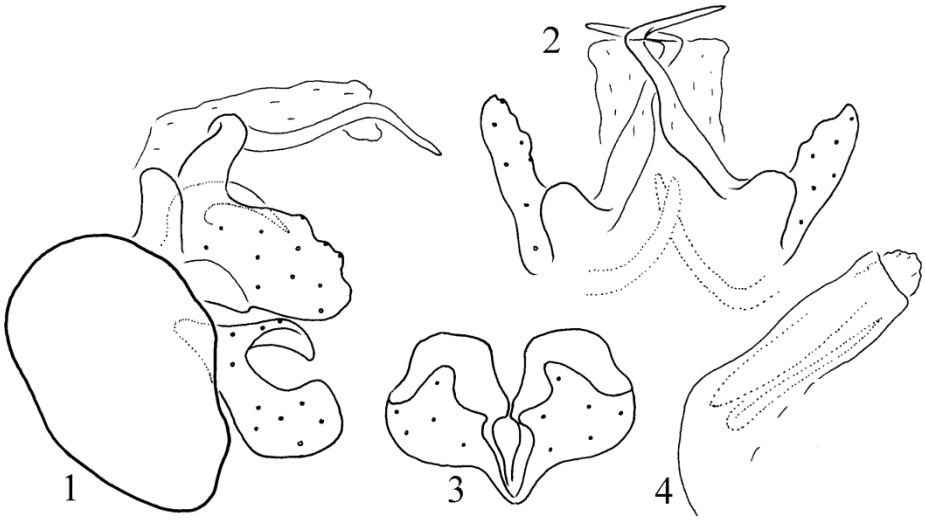
Description. Light brown animal. Length of forewing 6 mm. Segment IX composed of heavily sclerotized and fused sternum and pleuron with almost regular ovoid lateral profile as well as by a pair of digitiform sclerotized structure, remnant of tergum IX partially adhered to the cercal-paraproctal complex. Segment X membranous structure covering the cercal-paraproctal complex. Cercal-paraproctal complex forms a pair of large, elongated ovoid cerci and larger dorsal and smaller ventral branches of paraproct. Gonopods typically bilobate, particularly constructed as detailed in the lateral and ventral views of drawings.

Etymology. Named after the locus typicus, a noun in apposition.

Polycentropus milikuri Malicky, 1975

(Map 1)

Polycentropus milikuri Malicky, 1975:84–85: „Holotypus ♂ und Allotypus ♀: Zypern, Troodos-Gebirge, südlich von Milikuri, 600 m, 1.5.1974, leg. Malicky & Wagner, in meiner Sammling." „Vom allgemeinen Bau der *P. ierapetra*-Verwandt



Figures 1–4. *Polycentropus maglic* Oláh, sp. nov. Holotype male: 1 = genitalia in left lateral view; 2 = genitalia in dorsal view; 3 = gonopods in ventral view; 4 = phallic organ in left lateral view.

schaft, mit folgenden Besonderheiten: Präanalsklerite im basalen Drittel schulterartig abgesetzt, Endteil rechtwinklig abgebogen und nach schräg unten-aussen gerichtet. Aussenteil der oberen Anhänge oval, Innen teil tief ins Segment eingezogen und am Innenrand mit einem grossen, nach unten gebogenden Dorn. Untere Anhänge kurz, massive, mit einigen stark sklerotisierten Höchern in der Anordnung nach Abb. 10/1,2 und 5."

Polycentropus septentrionalis Kumanski, 1986, stat. nov.

(Map 1)

Polycentropus ierapetra septentrionalis Kumanski, 1986:185–186: „Bulgaria, Struma valley, realway station Stara Kresna, 10.VI.1975; Sestrimo village, the foothills of Ograzhden Mt. 19.IX.1981; Rhodopes Mts., Lukovitza river, above Asenograd, 8.VIII. 1983; Strandzha Mt. Ropotamo river, 2 km above Krushevetz village, 4.VIII.1981; Eastern part of the Stara planina Mt, Kamtsia river, 2 km from the Kamtshia barrage, 15.VI.1984. Holotype chosen among the specimens from the Rhodopes." „The new species is closely related to the nominal form, but resembling the other subspecies to a lesser extent. It is the only form of this species with the inner spine of the superior appendages set not at their dorsal margin, but somewhat lower. Feebly developed inner basal part of the superior appendages and the strongly curved dorsal thorns are features relating the most distantly distributed subspecies – *P. i. ierapetra* Mal. and *P. i. septentrionalis* n. subsp. Surprisingly, the other subspecies, though inhabiting areas between Crete and Bulgaria, seems to be not so close to the new subspecies."

Material examined. **Bulgaria**, Eastern Rhodopi Mts, below Komuniga Village, 494m, N41°47' 46"; E25°12' 06" 12.VI.2018, leg. S. Beshkov, B. Zlatkov, R. Bekchiev (2 males, OPC). Bulgaria, Eastern Rhodopi Mts, below Komuniga Village, 494m, N41°47'46"; E25°12' 06" 14.VI.2018, leg. S. Beshkov, B. Zlatkov, R. Bekchiev (1 male, OPC). Bulgaria, Eastern Rhodopi Mts, Borovitza Valley, between Duzhdovnitza and Pudartzi, 359m, N41.68591°; E25.282159°, 13.VI.2018, leg. S. Beshkov, B. Zlatkov, R. Bekchiev (6 males, OPC). **Macedonia**, Pelister Mts, Planinarski Dom „Shiroka", 1955m, N41°00'17"; E21°10' 07", 6.VIII.2016, leg. S. Beshkov & A. Nahirnic (1 male, OPC).

Polycentropus slovenica Malicky, 1998 stat. nov.

(Map 2)

Polycentropus ierapetra slovenica Malicky, 1998:326-328: „Holotypus: ♂, Slowenien, Mlini, Sočerga, 29.VI.1990, leg. C. Krušnik, in meiner Sammlung." „Habitus wie üblich, Vorderflügellänge 6 mm. Kopulationsarmaturen: Der Distalteil der Dorsal-

stäbe ist relativ lang, nach unten geknickt und in sich bogenförmig verdreht, so wie bei der Nominatform und bei subsp. *anatolica*. Die unteren Anhänge haben in Lateralansicht einen schlanken, geraden Dorsallappen, der in Ventralansicht rundlich aussieht, und einen deittlich kürzeren Ventrallapen. Der Innenast der Präanalanhänge ist kurz, aus breiter Basis scharf zugespitzt und nach unten gebogen. Er entspringt an der Ventralkante des Anhanhgs und ist deutlich kürzer als bei den Unterarten *dirfis*, *ikaria* und *anatolica*."

Polycentropus staraplanina Oláh, sp. nov.

(Figures 5–7, Map 1)

Material examined. Holotype: **Bulgaria**, W. Stara Planina Mts, above Gorni Lom Village, on Lyava Reka, the road to Martinovo, N43.42714°, E022.74467°, 13.IX.2021, 795 m, leg. S. Beshkov & A. Nahirnić-Beshkova (1 male, OPC). Paratypes: same as holotype (2 males, OPC).

Diagnosis. This new sibling species in the species complex having paraproct incomplete with dorsal branches only has resemblance to *Polycentropus septentrionalis* Kumanski, 1986. Differs from it by the low and regularly tapering cerci the bilobed lateral profile of the gonopod less excised as well as its ventral and ventrocaudal pattern is completely different.

Description. Light brown animal. Length of forewing 7 mm. Segment IX composed of the heavily sclerotized and fused sternum and pleuron with slightly parallel-sided lateral profile as well as by a pair of digitiform sclerotized structure, remnant of tergum IX partially adhered to the cercal-paraproctal complex. Segment X membranous structure covering the cercal-paraproctal complex. Cercal-paraproctal complex forms a pair of large, elongated and tapering cerci and larger broad-based dorsal branches of paraproct; ventral branches of paraproct reduced almost lacking. Gonopods typically bilobed particularly constructed as detailed in the lateral and ventral views of drawings.

Etymology. Named after the locus typicus, a noun in apposition.

Hydropsychidae Curtis,1835

Diplectrona albanica Oláh, 2020

Material examined. **Albania**, Korçë county, Kolonjë municipality, Leskovik, roadside spring W of the town, 575 m, N40.14503° E20.57265°, 30.IV.2021, leg. T. Kovács, D. Murányi, P. Olajos (1 male, OPC).

Hydropsyche bulbifera McLachlan, 1878

Material examined. **Albania**, Korçë county, Maliq municipality, Zëmblak, Devoll River N of the village, 830 m, N40.70804° E20.87123°, 28.IV.2021, leg. T. Kovács, D. Murányi & P. Olajos (6 males, 1 female; OPC).

Hydropsyche tabacarui Botosaneanu, 1960

Material examined. Bulgaria, Rila Mts, above Rila Monastery, Kirilova polyana, 1488m, N42.15519, E23.40036 18.VII.2020, leg. S. Beshkov, A. Nahirnic & D. Kaynarov (1 male, OPC).

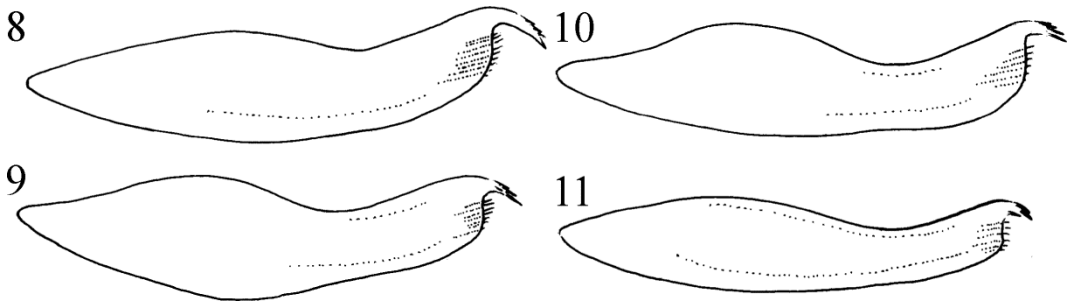
Rhyacophilidae Stephens,1836

Rhyacophila balcanica new species complex

(Map 3)

This new species complex belongs to the *Rhyacophila vulgaris* species group. Its species have medium-sized body and marble forewing pattern. Segment IX with abbreviated ventrum and elongated median dorsoapical lobes. Cerci fused dorsally to segment X forming together a trilobed apical ending; ventral arm of segment X slim attached to epiproct (anal sclerite of Schmid), paraproct (apical band of Schmid) well developed, membranous. Second segment of gonopod, the harpago is small. Phallic organ composed of phallotheca without dorsal process, membranous endotheca, simple and tube-like aedeagus and robust, pronounced variously modified pair of parameres. At present four species belong to this new species complex: *Rhyacophila albanica* sp. nov., *R. balcanica* Radovanović, 1953, *R. montenegra* sp. nov., *R. syrikaltera* sp. nov.

Figures 5–7. *Polycentropus staraplanina* Oláh, sp. nov. Holotype male: 5 = genitalia in left lateral view; 6 = gonopods in ventral view; 7 = phallic organ in left lateral view.



Figures 8–11. *Rhyacophila albanica* Oláh & Ibrahimi sp. nov. Holotype male: 8 = left paramere in left lateral view, Albania, Bulqizë; Paratypes: 9 = left paramere in left lateral view, Albania, Bulqizë; 10 = left paramere in left lateral view, Albania, Skrapar; 11 = left paramere in left lateral view, Albania, Schmid drawing.

Rhyacophila albanica **Oláh & Ibrahimi sp. nov.**

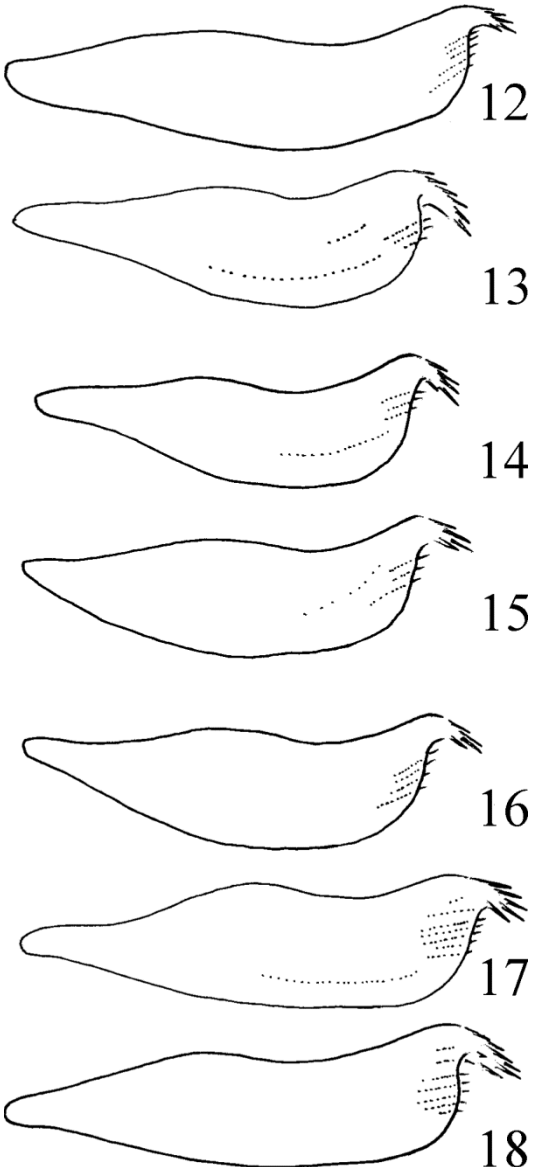
(Figures 8–11, Map 3, Photo 1)

Rhyacophila balcanica Radovanović, 1953. Schmid 1970:120 „(Macédoine, Albanie)", Pl. IX, fig. 1–2. Misidentification.

Material examined. Holotype: **Albania**, Bulqizë district, Çermenikë Mts, Ballenjë, open stream, N41°21.621', E20°14.472', 1365 m, 20.VI.2012, UV light, leg. Z. Fehér, T. Kovács, D. Murányi (1 male, OPC). Paratypes: same as holotype (1 male, 1 female; OPC). Albania: Skrapar district, Ostrovicë Mts, Backë, brook and spring NE of the village, N40°31.346' E20° 25.096', 1650 m, 12.X.2012, leg. P. Juhász, T. Kovács, D. Murányi, G. Puskás (1 male, OPC). Albania Tomorr Mountains. Stream nearby the Hotel Perla N40.63152°, E20.19809°, 1336 m, 15.IX.2019. leg. H. Ibrahimi, A. Bilalli, M. Musliu. (2 males, DBFMNSUP).

Diagnosis. This incipient sibling species is diverged and delineated by the lateral shape of the paraproct. Closest to *Rhyacophila balcanica*, but the apical half of the paramere is low (narrow), not as high (wide) as in *balcanica* as well as the mesad turning dorsoapical spinose process more slender.

Description. Medium sized species with marble wing pattern and forewing length of 17 mm. Segment IX with abbreviated ventrum and elon-



Figures 12–18. *Rhyacophila balcanica* Radovanović, 1953. 12 = left paramere in left lateral view, Bosnia-Herzegovina, Kadino Selo; 13 = left paramere in left lateral view, Bosnia-Herzegovina, Sutjeska; 14–15 = left paramere in left lateral view, Kosovo; 16 = left paramere in left lateral view, Macedonia; 17-18 = left paramere in left lateral view, Albania, Bjesket-Nemuna.

gated median dorsoapical lobes. Cerci fused dorsally to segment X forming together a trilobed apical ending; ventral arm of segment X slim attached to epiproct (anal sclerite of Schmid), paraproct (apical band of Schmid) well developed, membranous. Second segment of gonopod, the harpago is small. Phallic organ composed of phallotheca without dorsal process, membranous endotheca, simple and tube-like aedeagus and robust, pronounced variously modified pair of parameres.

Photo 1. Locus typicus of *Rhyacophila albanica* Oláh & Ibrahimi sp. nov. (D. Murányi)

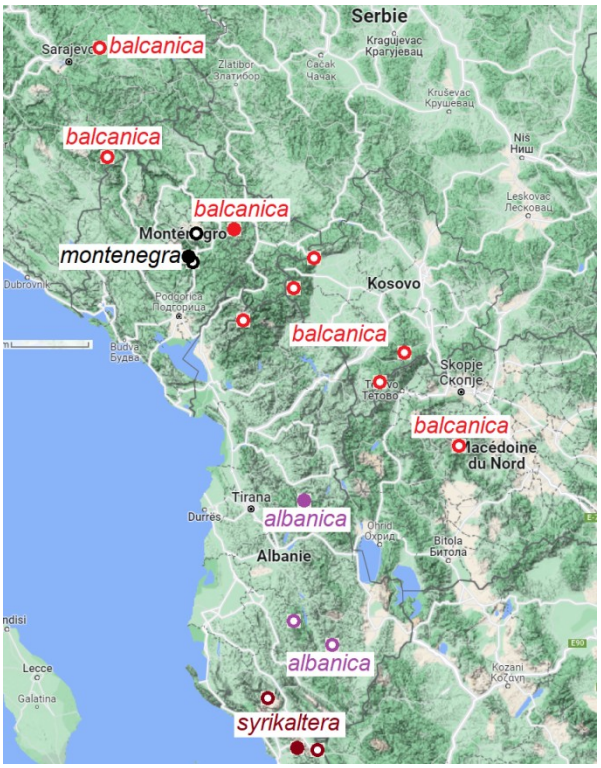
Etymology. Named after the locus typicus.

***Rhyacophila balcanica* Radovanović, 1953**

(Figures 12–18, Map 3)

Rhyacophila balcanica Radovanović, 1953:39. From the German summary: „Fundort: ein Männchen auf dem Bjelassitza-Gebirge in Montenegro (am 12. VIII. 1948).” Translation from the original Serbian text: the Type locality in Bjelasica Mts. at Sisko Jezero Lake, nearby Biogradska Gora.

Material examined. **Albania**, Bjeshkët e Nemuna Mts (=Prokletije Mts), Shala valley, Theth village, Okol hamlet, N42°24’48”, E19°45’37”, 840 m, 15.VIII.2018, leg. S. Beshkov & A. Nahirnic (2 males, OPC). **Bosnia-Herzegovina**, Kadino Selo, Mokro Krzulj Potok, N43.93168° E18.64548°, 12.VII.2008, leg. M. Bálint & S. Lelo (1 male HNHM). Sutjeska National Park, spring stream, 2.IX.1988, leg. J. Oláh (1 male, OPC). **Kosovo**, Novosellë (Novoselo), Drini i Bardhë spring (Beli Drim spring) (580 m) [in and around the spring and the outlet stream, limestone rocks, caves and karstic forest], N42°44.239’ E20°18.408’, 12.X.2005, leg. T. Deli, V. Erőss,



Map 3. Distribution of the new *Rhyacophila balcanica* species complex

V. Fehér & D. Murányi (2 males, 1 female, HNHM). Sharr Mountains, Prizren – Shtërpcë road, tributary of Lepenc River, N42.17506°, E20.97593°, 1410 m, 12.VI.2013. leg. H. Ibrahimi (3 males, DBFMNSUP). Sharr Mountains, Prevallë, Lumbardhi i Prizrenit River, N42.161°, E20.9533°, 1664 m, 18.IX.2013. leg. H. Ibrahimi. (2 males, DBFMNSUP). Kosovo, Bjeshkët e Nemuna Mountains, Lloqan Mountain, above Lloqan Village, middle section of the Lloqan River, N42.5518°, E20.1624°, 1333 m, 13.VI. 2014. leg. H. Ibrahimi (1 male, DBFMNSUP). **Macedonia**, Vardar region, Jakupica Mts, Nežilovo, Babuna Spring NW of the village, N41° 41.417' E21°24.974', 1275m, 3.X.2013, leg. T.Kovács, D.Murányi, (2 males, 2 females; OPC). Polog region, Šar Planina, Bozovce, open stream, brooks and seeps W of the village, N42°03.147', E20°46.920', 1880 m, 24.06.2014, P. Juhász, T. Kovács, D. Murányi (2 males, OPC).

New diagnosis. Species with marble wing pattern and forewing length of 19 mm. This probably ancestral incipient sibling species of the complex distributed in Bosnia-Herzegovina, Montenegro, Kosovo, Macedonia and North Albania, is diverged and delineated by the lateral shape of the paraproct. Closest to *Rhyacophila albanica* sp. nov. but the apical half of the paramere is high (wide), not as low (narrow) as in *albanica*, as well as the mesad turning dorsoapical spinose process more robust.

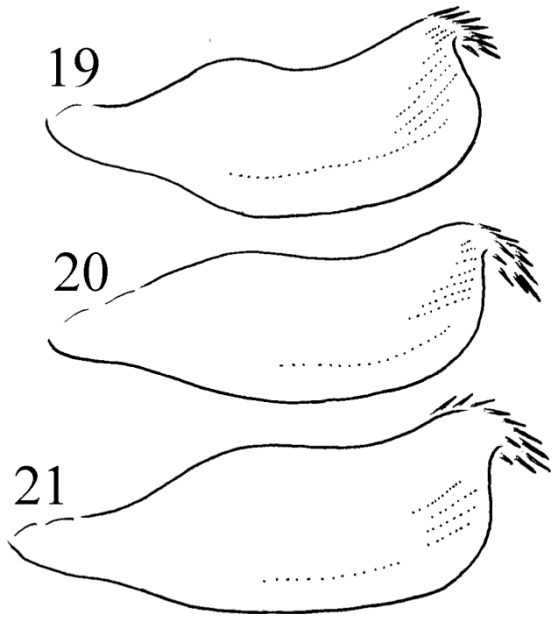
***Rhyacophila montenegra* Oláh, sp. nov.**

(Figures 19–21, Map 3, Photos 2– 3)

Material examined. Holotype: **Montenegro**, Maganik Mts. Mrtvo Duboko, Canyon of river Mrtvica, Mrtvica, N42°43'47.2", E19°20'22.9", 7.V.2003, leg. P. Juhász, T. Kovács, V. Pešić, P. Sevola, (1 male, OPC). Paratypes: Montenegro, Kolasin municipality, Monastir Moraca, karst spring and its outlet at monastery, N42°45.942', E19°23.436', 300 m, 19.VIII.2011, UV, leg. Sz. Czigány, & D. Murányi (1 males, OPC). Sinjajevina Mts. Gornji Lipovo NW 4km, beech forest and forest brook, 1351m, N42°53.829', E19° 23.140', 11.X.2008, leg. L. Dányi, Z. Fehér, J. Kontschán & D. Murányi (1 male HNHM).

Diagnosis. This incipient sibling species is diverged and delineated by the lateral shape of the paraproct. Closest to *Rhyacophila balcanica*, but the apical two thirds of the paramere is very high (wide) as well as the mesad turning dorsoapical spinose process more produced without mesoapical spine cluster longer than the apical margin itself.

Description. Medium sized species with marble wing pattern and forewing lenght of 17 mm. Segment IX with abbreviated ventrum and elongated median dorsoapical lobes. Cerci fused dorsally to segment X forming together a trilobed apical ending; ventral arm of segment X slim attached to epiproct (anal sclerite of Schmid), paraproct (apical band of Schmid) well developed, membranous. Second segment of gonopod, the harpago is small. Phallic organ composed of phallotheca without dorsal process, membranous endotheca, simple and tube-like aedeagus and robust, pronounced variously modified pair of parameres.



Figures 19–21. *Rhyacophila montenegra* Oláh, sp. nov. Holotype male: 19 = left paramere in left lateral view, Montenegro, Maganik; Paratypes: 20 = left paramere in left lateral view, Montenegro, Sinjavevina; 21 = left paramere in left lateral view, Montenegro, Kolasin.

Etymology. Coined from the name of locus typicus, a noun in apposition.

Remarks. It requires more study, how this particularly organised paramere developed in the middle of the distributional area of the putative ancient species.

Rhyacophila syrikaltera Oláh & Ibrahimi sp. nov.

(Figures 22–24, Map 3, Photo 4)

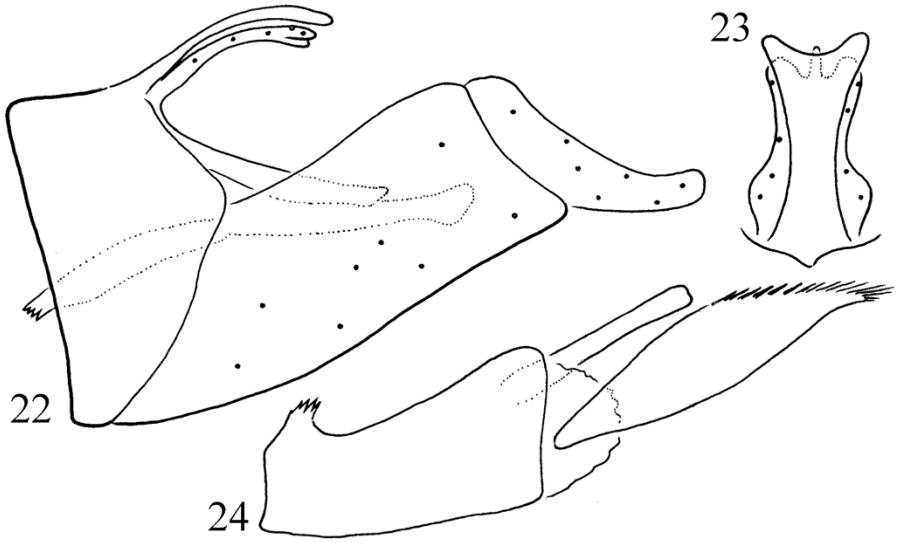
Material examined. Holotype: **Albania**, Delvina Region, Syri i Kaltër near Bistrica Village, 155 m, N39°55'23"; E20°11'30" 23.X.2017, leg. S. Beshkov & A. Nahirnic (1 male, OPC). Allotype: same as holotype (1 female, OPC). Paratype: same as holotype (1 female, OPC). Gjirokastër county, Finiq municipality, Syri i Kalter spring, N39°55'23"; E020°11'30", 155 m, 3.XI.2018, leg. S. Beshkov & A. Nahirnic (10 males, 1 female; OPC). Gjirokastër county, Tepelenë municipality, Kurvelesh, Gurrit Stream E of Progonat, 1025m, N40°12.625' E19°58.108' leg.

Photo 2. Locus typicus of *Rhyacophila montenegra* Oláh, sp. nov. in April (T. Kovács)

Photo 3. Locus typicus of *Rhyacophila montenegra* Oláh, sp. nov. in November (T. Kovács)

P. Juhász, T. Kovács, D. Murányi, 29.VI.2018 (1 male, OPC). Albania, Tepelenë district, Kurveleshi area, Progonat, Gurrit Stream spring area, E of the village, N40°12.629' E19°58.237', 1045m, 14.X.2013, leg. P.Juhász, T.Kovács, D. Murányi, G.Puskás, (3 males, 1 female; OPC). Albania: Gjirokastër county, Dropull, Drino River, 39.912978°N, 20.336181°E, 29.IX.2014, leg. H. Ibrahimi (2 males; DBFMNSUP).

Diagnosis. The smallest member of the species group, differentiated very distinctly from all the other members of the complex by the lateral shape of the paramere and especially by the development of the dorsoapical spine cluster. According to our present knowledge this most diverged



Figures 22–24. *Rhyacophila syrikaltera* Oláh & Ibrahim sp. nov. Holotype male: 22 = genitalia in left lateral view 23 = genitalia in dorsal view; 24 = phallic organ in left lateral view.

Photo 4. Locus typicus of *Rhyacophila syrikaltera* Oláh & Ibrahim sp. nov. (G. Puskás)

member of the species complex is organised in the southern margin or tip of the distributional area of the species complex.

Description. Medium sized species with marble wing pattern; forewing length 16 mm. Segment IX with abbreviated ventrum and elongated median dorsoapical lobes. Cerci fused dorsally to segment X forming together a trilobed apical ending; ventral arm of segment X slim attached to epiproct (anal sclerite of Schmid), paraproct (apical band of Schmid) well developed, membranous. Second segment of gonopod, the harpago is small. Phallic organ composed of phallotheca without dorsal process, membranous endotheca, simple and tube-like aedeagus and robust, pronounced variously modified pair of parameres.

Etymology. Coined from the name of locus typicus, a noun in apposition.

***Rhyacophila biegelmeieri* Malicky, 1984**

Material examined. **Albania**, Librazhd Region, Shkumbini River Valley, near Qukës, 287m, N41.1458°, E20.3766°, 29.X.2018, leg. S. Beshkov & A. Nahirnic (15 males, OPC). **Montenegro**, Moraca River Valley, near Bioce Village, N42.52733°, E019.35492°, 195m, 6.X.2019, leg. S. Beshkov & A. Nahirnic (4 males, OPC).

***Rhyacophila brevifurcata* Kumanski, 1986**

Material examined. **Serbia**, Pčinja district, Bosilegrad municipality, Besna Kobila Mts, Crna Stream W of Musulj, N42.51688°, E22.24835°, 1210 m, 25.IX.2021, leg. P. Juhász, T. Kovács, D. Murányi (3 males, 1 female; OPC). Pčinja district, Vranje municipality, Besna Kobila Mts, forest brook along Ruski Put, 1460 m, N42.53206°, E22.20277°, 25.IX.2021, leg. P. Juhász, T. Ko-

vács & D. Murányi (1 male, OPC). Pirot district, Pirot municipality, Stara Planina, forest seeps N of Jelovica, 950 m, N43.23212°, E22.84662°, 24.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (3 males, 2 females; OPC)

Rhyacophila bosnica new species complex

(Map 4)

This new species complex in the *R. tristis* species group of the *R. invaria* arm in the *R. philopotamoides* branch is established here with five species: *R. bosnica* Schmid, 1970, R. *cibinensis* Botosaneanu & Marinković, 1967, *R. kozara* sp. nov., *R. sarplana* sp. nov., *R. staraplana* sp. nov. However, perhaps many more species are waiting to be collected and described in the isolated Balkan mountain ranges. Divergences among incipient sibling species of the *R. bosnica* complex are well discernible in the lateral profile of the head of the dorsal arm of segment X. However, there are definite shape divergences in the dorsal profile of the fused head of the dorsal arm of segment X, but difficult to draw due to the extreme sensitivity of the observational angle. There are discernible divergences in the structure of the lateral and ventral profiles of the aedeagus, but difficult to expose free as well as the membranous endotheca and the mostly membranous paramere and the membranous ventral lobe of aedeagus liable to shape distortion due to copulatory activities or to clearing and cleaning preparatory processes.

Rhyacophila bosnica Schmid, 1970

(Map 4)

Rhyacophila bosniaca Botosaneanu & Marinković, 1967:1145–1147. (**Nomen nudum**). „La description d'une nouvelle espèce de Vucialuka, Bosnie (*bosniaca* Schmid) n'est pas encore publiée au moment où nous écrivons ces lignes, mais nous avons pu en prendre connaissance grâce aux dessins que M. le Dr F. Schmid a eu l'amabilité de nous confier. Or, l'un de nous (M. Marinković) ayant capturé en Bosnie (24 mars 1957, Chavnitzi, Mt Bjelachnitza = Bjelače), plusieurs exemplaires ♂ de cette espèce, nous sommes en mesure d'en figurer l'armature génitale (fig. 1) et de la comparer à celle d'une nouvelle espèce fort voisine que nous décrirons (*R. cibinensis*, n. sp.)."

Map 4. Distribution of the new *Rhyacophila bosnica* species complex

Rhyacophila bosnica Schmid, 1970:161: „Holotype ♂: Yougoslavie, Bosnie, Vućjaluka = Vučja Luka." Cette espèce est étroitement apparentée à *cibinensis*, dont elle ne se distingue que par quelques détails de la forme du Xe segment et des appendices inférieurs."

Remarks . We had no access to type or any other specimens to examine the nominate species of this new species complex. However, there are excellent drawings published by Botosaneanu & Marinković (1967) and by Schmid (1970) available to compare with the three new species.

Rhyacophila cibinensis Botosaneanu & Marinković, 1967

(Map 4)

Rhyacophila cibinensis Botosaneanu & Marinković, 1967:1147–1149: „Matériel, localités. Le 19 mai 1963, 5♂ et 3♀ (leg. B. Kis) furent capturés à Paltini = Păltiniș, près de deux affluents du Rîul Mare; cette localité est située dans les Monts de Cibin, Carpates méridionales, 1400 m alt. environ, plus loin de Sibiu (Hermannstadt). Holotype ♂ et allotype ♀ dans la collection Botosaneanu, les paratypes ♂ et ♀ sont gardés dans les collections Botosaneanu, Marinković et Schmid."

Material examined. **Romania**, Parâng Mts. to Gilcescu Lake = Gâlcescu Lake, N45.38°, E23.62°, 1490 m a.s.l., 3.VI.2007. leg. Bálint, Thessinger & Taubmann (1 male, OPC).

Rhyacophila kozara Oláh, sp. nov.

(Figure 25, Map 4)

Rhyacophila bosnica Schmid, 1970: Oláh & Kovács, 2015:107. Misidentification.

Material examined. Holotype: **Bosnia & Herzegovina**, Banja Luka region, Kozara Mts. Kozarac, forest stream above the city, 410 m, N44°59.920', E16°52.868', 16.III.2012, leg. T. Kovács, D. Murányi, & G. Puskás (1 male, OPC). Paratype: same as holotype (6 males, OPC).

Diagnosis. According to the lateral profile of the complex of segment X, paraproct and epiproct this new species is most close to the nominate species, *R. bosnica* Schmid, 1970. described from Vućjaluka, and drawn also from Bjelasnica Mt. (Botosaneanu & Marinković 1967) both localities are more south in Bosnia & Herzegovina compared to Kozara Mts. *R. kozara* sp. nov. differs by its shorter lobe of the harpago and longer dorsal process of the phallotheca. The most striking and stable divergence is detectable in the lateral profile of the complex of segment X, paraproct and epiproct, especially the fused dorsal arm of segment X. Apex of this arm produced posterodorsad, not anterodorsad.

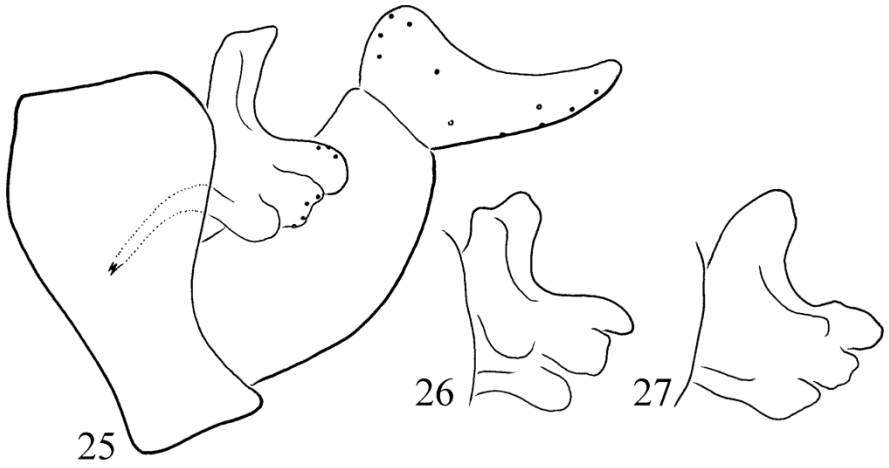
Description. Medium sized species without discernible forewing pattern in alcohol; forewing length 12 mm. Segment IX with abbreviated ventrum and elongated dorsum. The fused complex of segment X, paraproct (U-shaped apical band) and epiproct (anal sclerite) exhibit well discernible divergence in the posterodorsad produced head of the dorsal arm of segment X in lateral view. Second segment of gonopod, the harpago with elongated ventral lobe. Phallic organ composed of phallotheca (phallobase) with rather long dorsal process, membranous endotheca, less sclerotized, almost membranous paramere and the aedeagus with membranous ventral lobe and the slightly sclerotized dorsal lobe of ejaculatory duct.

Etymology. Coined from the name of locus typicus, a noun in apposition.

Rhyacophila sarplana Oláh, sp. nov.

(Figure 26, Map 4, Photo 5)

Material examined. Holotype: **North Macedonia**, Polog region, Tetovo municipality, Šar Planina, Bozovce, open stream above the village, N42.05023°, E20.78765°, 1750 m, 26.IV.2021, leg. T. Kovács, D. Murányi & P. Olajos (1 male, OPC). Paratype: same as holotype (1 male, OPC). **Albania,** Tropojë district, Tropojë, Bjeshkët e Nemuna Mts. (=Prokletije Mts), open stream on Mt. Callumit above the town, N42.498620° E20.124430°, 1970 m, 7.VII.2009, leg. Z. Barina, D. Pifko, G. Runk (1 male, HNHM).



Figures 25–27. *Rhyacophila kozara* Oláh, sp. nov. Holotype male: 25 = genitalia in left lateral view. 26 = *Rhyacophila sarplana* Oláh, sp. nov. Holotype male: segment X and paraproct, epiproct complex; 27 = *Rhyacophila staraplana* Oláh, sp. nov. Holotype male: segment X and paraproct, epiproct complex

Photo 5. Locus typicus of *Rhyacophila sarplana* Oláh, sp. nov. (T. Kovács)

Diagnosis. According to the lateral profile of the complex of segment X, paraproct and epiproct this new species is distinguished from all the others by the bilobate lateral profile of the head of the dorsal arm of segment X.

Description. Medium sized species without discernible forewing pattern in alcohol; forewing length 11 mm. Segment IX with abbreviated ventrum and elongated dorsum. The fused complex of segment X, paraproct (U-shaped apical band) and epiproct (anal sclerite) exhibits well discernible divergence in the bilobed produced that is the concave head dorsum of the dorsal arm of segment X in lateral view. Second segment of gonopod, the harpago with elongated ventral lobe. Phallic organ composed of phallotheca (phallobase) with short and stout dorsal process, membranous endotheca, less sclerotized, almost membranous paramere and the aedeagus with membranous ventral lobe and the slightly sclerotized dorsal lobe of ejaculatory duct.

Etymology. Coined from the name of locus typicus, a noun in apposition.

***Rhyacophila staraplana* Oláh, sp. nov.**

(Figure 27, Map 4)

Material examined. Holotype: **Serbia**, Stara Planina Mts, Crni Vrh, Košarište NE 720 m, stream, N43°25’20.1”, E22°35’55.4”, 1115 m, 23.05.2017, P. Juhász, T. Kovács, P. Olajos (1 male, OPC). Paratypes: same as holotype (1 male, 2 females; OPC).

Diagnosis. According to the lateral profile of the complex of segment X, paraproct and epiproct this new species is distinguished from all the others by the bilobate lateral profile of the head of the dorsal arm of segment X.

Description. Medium sized species without discernible forewing pattern in alcohol; forewing

length 12 mm. Segment IX with abbreviated ventrum and elongated dorsum. The fused complex of segment X, paraproct (U-shaped apical band) and epiproct (anal sclerite) exhibits well discernible divergence in the monolobate head dorsum of the dorsal arm of segment X with middle produced lobe in lateral view. Second segment of gonopod, the harpago with elongated ventral lobe. Phallic organ composed of phallotheca (phallobase) with long dorsal process, membranous endotheca, less sclerotized, almost membranous paramere and the aedeagus with membranous ventral lobe and the slightly sclerotized dorsal lobe of ejaculatory duct.

Etymology. Coined from the name of locus typicus, a noun in apposition.

Rhyacophila diakoftensis **Malicky, 1983, in Cakin & Malicky, 1983**

Material examined. **Albania**, Berat Region, between Ibrolara and Vale, Polican distr., 217m, N40°33'36"; E020°05'38", 16.X.2016, leg. S. Beshkov & A. Nahirnic (1 male, 1 female; OPC). Albania, Gjirokastër Region, Këlcyrë (Klisura) Gorge on Aoos (Vjosa) River near Këlcirë (Klisura) Village, N40.29646°, E020.16260°, 176m, 3.X.2019, leg. S. Beshkov & A. Nahirnic (4 males, 16 females; OPC).

Remarks. The presence of additional setae on parameres is not indicated nor mentioned in the original species drawings and description. Moreover, the absence of additional setae is mentioned and emphasized at *R. diakoftensis* by the author when compared it with his new species *R. biegelmeieri* Malicky, 1984. All the five males of *R. diakoftensis* examined from Albania have additional setae on the parameres subapicad and ventromesad. The sibling species *R. neretva*, *R. nyurga* and *R. pascoei* all have small cluster of additional setae on parameres subapically ventromesad beside the large apical seta. The presence of additional setae was probably overlooked, in the original species description of *R. diakoftensis*.

Rhyacophila fischeri **Botosaneanu, 1957**

Material examined. **Bulgaria**, Eastern Rhodopi Mts, Hambar Dere near Strazhetz, 569m, N41°21'08", E25°50'35" 15.V.2018, S. Beshkov, leg. B. Zlatkov, R. Bekchiev (4 males, OPC). W Stara Planina Mts. Gushovski Monastir above Tchiprovtzi Town, N43.3661°, E22.8402°, 808 m, 26.VI.2021, leg. S. Beshkov & A. Nahirnic-Beshkova (1 male, OPC). **Serbia**, Preshevo distr., above Trnava Village, 800m, N42°16'18"; E21° 36'47" 09.VII.2016, leg. S. Beshkov & A. Nahirnic (1 male, OPC).

Rhyacophila kimminsiana **Botosaneanu, 1958**

Material examined. **Romania**, Lotru Mts, Obirsia Lotrului, 1578 m, N45.463°, E23.620°, 29.VI.2016, singled leg. J. Oláh & J. Oláh jr. (6 males, OPC). Lotru Mts, Obirsia Lotrului, 1578 m, N45.463°, E23.620°, 30.VI.2016, singled leg. J. Oláh & J. Oláh jr. (1 male, OPC). Lotru Mts, Obirsia Lotrului, 1578 m, N45.463°, E23.620°, 30 VI.2016, light trap leg. J. Oláh & J. Oláh jr. (1 female, OPC).

Rhyacophila loxias **Schmid, 1970**

Material examined. **Bulgaria**, Rila Mts, Beli Iskar River Valley, above Beli Iskar Village, 1469m, N42.20767°, E023.55093°, 21.7.2020, leg. S. Beshkov, A. Nahirnic & D. Kaynarov (2 males, OPC). W Stara Planina Mts. Gushovski Monastir above Tchiprovtzi Town, N43.3661° E22.8402°, 808 m, 26.VI.2021, leg. S. Beshkov & A. Nahirnic-Beshkova (1 male, OPC).

Rhyacophila mocsaryi **Klapálek, 1898**

Material examined. **Bulgaria**, Rila Mts, Beli Iskar River Valley, above Beli Iskar Village, 1469m, N42.20767°, E023.55093°, 21.7.2020, leg.S. Beshkov, A. Nahirnic & D. Kaynarov (1 male, OPC). **Romania**, Lotru Mts, Obirsia Lotrului, dawn swarm along Lotru River, 30.VI.2016 singled leg. J. Oláh & J. Oláh jr. (1 female, OPC).

***Rhyacophila motasi* Botosaneanu, 1957**

Material examined. **Romania**, Apuseni Mts., Vladeasa Mt., Stâna de Vale, upper section of Ciripa stream, N46°40.546', E22°38.515', 1360 m, 6.VII.2016, leg. J. Kecskés (20 males, 2 females; OPC).

***Rhyacophila neretva* Oláh, 2016, in Olah & Beshkov, 2016**

Material examined. **Montenegro**, Moraca River Valley, near Bioce Village, N42.52733°, E19.35492°, 195m, 6.X.2019, leg. S. Beshkov & A. Nahirnic (4 males, OPC).

***Rhyacophila nubila* Zettwerstedt, 1840**

Material examined. **Albania**, Korçë Region, Dardha, 1276m, N40°31'34", E020°49'33", 26.6. 2017 meadow near stream with *Salix, Fagus* forest and hill with *Astragalus*, lamps, light traps leg. S. Beshkov & A. Nahirnic (1 male, OPC). Librazhd Region, Shkumbini River Valley, near Qukes, 287m, N41.1458°, E020.3766°, 29.X. 2018, leg. S. Beshkov & A. Nahirnic (11 males, 8 females; OPC).

***Rhyacophila obtusa* Klapálek, 1894**

Material examined. **North Macedonia**, Southwestern region, Vevčani municipality, Jablanica, Vevčani, forest stream above the village, 1190 m, N41.23257°, E20.57229°, 28.IV.2021, leg. T. Kovács, D. Murányi & P. Olajos (4 males, OPC). **Serbia**, Pirot district, Pirot municipality, Stara Planina, forest seeps N of Jelovica, 950 m, N43.23212°, E22.84662°, 24.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (6 males, 2 females; OPC)

***Rhyacophila polonica* McLachlan, 1879**

Material examined. **Bulgaria**, Sofia Region, near Beli iskar village, Rila Mts. N42.20766°, E23.55083°, 1468 m, 28.VII.2020, leg. D. Kaynarov (40 males, 1 female; OPC).

***Rhyacophila torrentium* Pictet, 1834**

Material examined. **Bulgaria**, Rila Mts, Beli Iskar River Valley, above Beli Iskar Village, 1469m, N42.20767°, E23.55093°, 21.7.2020, leg. S. Beshkov, A. Nahirnic & D. Kaynarov (1 male, OPC).

***Rhyacophila trescavicensis* Botosaneanu, 1960**

Material examined. **North Macedonia**, Southwestern region, Vevčani municipality, Jablanica, Vevčani, forest stream above the village, 1190 m, N41.23257°, E20.57229°, 28.IV.2021, leg. T. Kovács, D. Murányi & P. Olajos (1 male, OPC).

***Rhyacophila tristis* Pictet, 1834**

Material examined. **Albania**, Korçë Region, Dardha, 1276m, N40°31'34", E20°49'33", 26.VI. 2017 meadow near stream with *Salix, Fagus* forest and hill with *Astragalus*, lamps, light traps leg. S. Beshkov & A. Nahirnic (1 male, 1 female; OPC). **Romania**, Vâlcea county, Parâng Mts, Obrâşia Lotrului, open spring area, 500 m along Transalpina (67C) road, downstream from N45° 22'27.7", E23°39'4.0", 1915 m, 30.VI.2016, leg. J. Oláh & J. Oláh jr. (7 males, 2 females; OPC). Lotru Mts, Obirsia Lotrului, 1578 m, N45.463°, E23.620°, 30.VI.2016, singled leg. J. Oláh & J. Oláh jr. (6 males, 3 females; OPC). Lotru Mts, Obirsia Lotrului, 1578 m, N45.463°, E23.620°, 29.VI. 2016, singled leg. J. Oláh & J. Oláh jr. (8 males, 3 females; OPC). Vâlcea county, Parâng Mts, Obrâşia Lotrului, forested side stream at the forest line, 30.VI.2016, leg. J. Oláh & J. Oláh jr. (8 males, 5 females; OPC). Apuseni Mts., Vladeasa Mt., Stana de Vale, upper section of Ciripa stream, N46°40.546', E22°38.515', 1360 m, 6. VII.2016, leg. J. Kecskés (7 males, 8 females; OPC).

Glossosomatidae Wallengren, 1891

***Agapetus krawanyi* Ulmer 1938**

Material examined. **Serbia**, Svrljig municipality, Svrljishki Timok River Gorge, near Nish

evac village, 430m N43°28’15”, E022°05’27”, 30.V.2018, leg. S. Beshkov, A. Nahirnic, C. Plant & P. Jaksic (1 male, OPC).

***Agapetus ochripes* Curtis 1834**

Material examined. **Bulgaria**, W. Stara Planina Mts, Zarezan Tcheshma above Tchuprene on Tchuprenska Reka river, 674m, N43.4874°, E22.6154°, 24.VI.2021, leg. S. Beshkov & A. Nahirnić-Beshkova (1 male, OPC).

***Agapetus rectigonopoda* Botosaneanu 1957**

Material examined. **Macedonia**, Mt. Suva Planina, Kozjak Venec, N41°53’27”, E21°13’26”, 1070m, 21.VII.2018, leg. S. Beshkov (1 male, OPC).

***Glossosoma bifidum* McLachlan, 1879**

Material examined. **Albania**, Delvina Region, Syri i Kalter near Bistrica Village, 155 m, N39° 55’23”, E20°11’30” 23.X.2017, leg. S. Beshkov & A. Nahirnic (2 males, 1 female; OPC). Albania, Gjirokastër county, Finiq municipality, Syri i Kaltër spring, N39°55’23”, E20°11’30”, 155 m, 6.VIII.2018, leg. S. Beshkov & A. Nahirnic (9 males, OPC).

***Glossosoma conformis* Neboiss, 1963**

Material examined. **Bulgaria**, W. Stara Planina Mts, Zarezan Tcheshma above Tchuprene on Tchuprenska Reka reiver, 674m, N43.4874°, E22.6154°, 24.VI.2021, leg. S. Beshkov & A. Nahirnić-Beshkova (8 males, OPC).

***Glossosoma discophorum* Klapálek, 1902**

Material examined. **Albania**, Gjirokastër county, Finiq municipality, Syri i Kaltër spring, N39°55’23”, E20°11’30”, 155 m, 6.VIII.2018, leg. S. Beshkov & A. Nahirnic (1 male, OPC).

Phryganeidae Leach, 1815

***Agrypnia varia* Fabricius, 1793**

Material examined. **Albania**, Prespa Lake, near Pustets Village, 849m., N40°46’14”, E20° 54’32”, 19.VIII.2017, *Typha, Phragmitis, Mentha*, lake shore, lamps, light traps leg. S. Beshkov & A. Nahirnic (7 males, 10 females; OPC). **Bulgaria**, Sofia Region, Dragoman distr., Tchepun Hill, below Petrovski Krust summit, 1167m, 14.VIII.2020, N42.94797°, E22.95211°, leg. at light S. Beshkov (10 male, 5 females; OPC). **Macedonia**, Galichitza Mts, between Dvata Yavora and Bulgarska Tchuka Top, 1587m, N40° 59’27”, E20°51’28” 03.VII.2016, leg. S. Beshkov & A. Nahirnic (2 male, 1 female; OPC).

***Phryganea ochrida* Malicky, 1975**

Material examined. **Macedonia**, Pelister-Prespa Lake, Slivnitsa Village-Sveta Bogoroditsa Monastery, N40°58’06”, E21°05’30”, 1135m, 07.VIII.2016, leg. S. Beshkov, A. Nahirnic, B. Zlatkov (2 males, OPC). **Albania**, Prespa Lake, near Pustets Village, 849 m., N40°46’14”, E20° 54’32”, 19.VIII.2017, *Typha*, *Phragmitis*, *Mentha*, lake shore, lamps, light traps leg. S. Beshkov & A. Nahirnic (5 males, 2 females; OPC).

Brachycentridae Ulmer, 1903

***Brachycentrus montanus* Klapálek, 1892**

Material examined. **Bulgaria**, Rila Mts, Beli Iskar River Valley, above Beli Iskar Village, 1469m, N42.20767°, E023.55093°, 21.7.2020, leg.S. Beshkov, A. Nahirnic & D. Kaynarov (12 males, 15 females; OPC).

Uenoidae Iwata, 1927

***Thremma anomalum* McLachlan, 1876**

Material examined. **Serbia**, Moravica district, Ivanjica, Golija Mts, forest stream and its sidebrook along road No.197, 1500m, N43° 20.289’, E20°15.059’, leg. P. Juhász, T. Kovács & D. Murányi, 26.VI.2018 (1 male, OPC). Zaječar district, Knjaževac municipality, Stara Planina, open brooks on Mt. Midžor, 1885 m, N43.39002°, E22.67431°, 23.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (3 males, 1 female; OPC).

Lepidostomatidae Ulmer, 1903

***Crunoecia monospina* Botosaneanu, 1960**

Material examined. **Serbia**, Zaječar district, Knjaževac municipality, Stara Planina, forest brook E of Mt. Babin zub, 1535 m, N43.38057°, E22.63269°, 23.IX.2021, leg. T. Kovács (1 male, OPC).

***Lepidostoma hirtum* Fabricius, 1775**

Material examined. **Albania**, Delvina Region, between Bistrica Village and Syri i Kalter, 127 m, N39°55'53", E20°09'13", 13.V.2017, leg. S. Beshkov & A. Nahirnic (4 males, OPC).

Limnephilidae Kolenati, 1848

Drusinae Banks, 1916

***Drusus biguttatus* (Pictet, 1834)**

Material examined. **Albania**, Bjeshkët e Nemuna Mts. (= Prokletije Mts), Radohima Mt., between Qafa e Thorës pass and Theth village, south-east of Shtegu peak, 1657m, N42.3854°, E19.7502°, 19.VII.2018, leg. S. Beshkov & A. Nahirnic (6 males, OPC). Bjeshkët e Nemuna Mts (=Prokletije Mts), Radohima Mt., between Qafa e Thorës pass and Theth village, south-east of Shtegu peak, N42°23'04", E019°45'25", 1562 m, 15.VIII.2018, leg. C. Plant (1 male, OPC). **Bulgaria**, Rila Mts, Beli Iskar River Valley, above Beli Iskar Village, 1469m, N42.20767°, E23.55093°, 21.7.2020, leg.S. Beshkov, A. Nahirnic & D. Kaynarov (4 males, OPC). Sofia Region, near Beli Iskar village, Rila Mts. N42.20766°, E23.55083°, 1468 m, 28.VII.2020, leg. D. Kaynarov (1 male, OPC). Bulgaria, Sofia Region, under Zavrachitsa Chalet, Rila Mts, N42.181264° E23.641052°, 1973m 12.VII.2021, leg.D. Kaynarov (6 males, OPC).

***Drusus botosaneanui* Kumanski, 1968**

Material examined. **Bulgaria**, Sredna Gora Mts, near Panagyurski Kolonii, 1119m, N42° 35'28", E24°13'34", 13.VIII.2017, meadow in *Fagus* forest, lamps, light traps, leg. S. Beshkov & R. Bekchiev (1 male, OPC). Bulgaria, W. Stara Planina Mts, above Gorni Lom Village, on Lyava Reka, the road to Martinovo, N43.42714°, E22.74467°, 13.IX.2021, 795 m, leg. S. Beshkov & A. Nahirnić-Beshkova (45 males, 29 females; OPC). **Macedonia**, Plačkovica Mountains, South-eastern region, Radoviš municipality, Plačkovica Mts, forest brook beneath Beli Kamen resorts, 1335 m, N41°44.672', E22°30.356', 5.X.2017, leg. S. Beshkov, J. Kecskés, Sz. Kovács, S. Nagy, A. Nahirnic & Zs. Pap (1 male, 1 female; OPC). **Serbia**, Braničevo district, Žagubica municipality, Beljanica Mts, Krupaja, Krupajsko Vrelo, 235 m, N44.18377°, E21.60915°, 22.IX.2021, leg. P. Juhász, T. Kovács, D. Murányi (1 male, 1 female; OPC).

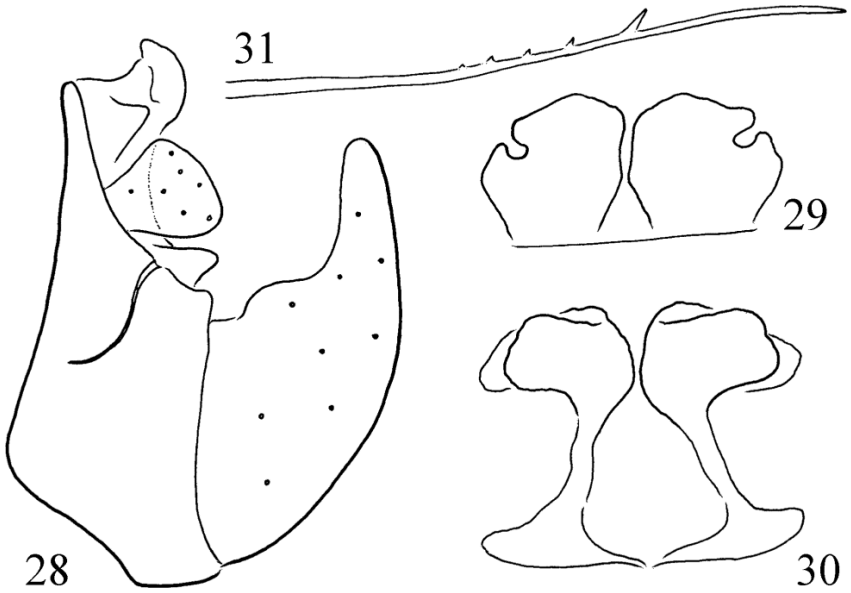
***Drusus discolor* (Rambur, 1842)**

Material examined. **Bulgaria**, Rila Mts, Beli Iskar River Valley, above Beli Iskar Village, 1469 m, N42.20767°, E023.55093°, 21.7.2020, leg. S. Beshkov, A. Nahirnic & D. Kaynarov (128 males, 19 females; OPC). Rila Mts, Sapareva Banya Distr., above Panichishte Resort, N42.25575°, E23.29940°, 1450m, 20.VII.2020, leg. S. Beshkov, A. Nahirnic, D. Kaynarov & T. Baron (2 males, OPC). Rila Mts, Tiha Rila above Rilski Monastir, N42.13837°, E023.47227°, 1972m, 19. VII.2020, leg. S. Beshkov, A. Nahirnic & D. Kaynarov (1 male, OPC). Bulgaria, Rila Mts, Above Belmeken Reservoir, Rokerska Chuchura, N42.14619°, E23.76575°, 1937m, 15.VII.2020, leg. S. Beshkov, A. Nahirnic & D. Kaynarov (1 male, OPC). Bulgaria, Kyustendil Region, Obedishte, between Rilski Monastery and Kirilova Polyana, Rila Mts, N42.142703°, E23.35605°, 1228m, 04.VI.2021, leg. D. Kaynarov (1 male, 1 female; OPC).

***Drusus gornistok* Oláh, sp. nov.**

(Figures 28–31, Photo 6)

Material examined. Holotype: **North Macedonia**, Southwestern region, Debarca municipality, Velmej, Gorni Istok Spring and its outlet, 865 m, N41.27912°, E20.91887°, 1.V.2021, leg.



Figures 28–31. *Drusus gornistok* Oláh sp. nov. Holotype male: 28 = genitalia in left lateral view; 29 = paraproct in dorsal view; 30 = paraproct in caudal view; 31 = left paramere in lateral view.

Photo 6. Locus typicus of *Drusus gornistok* Oláh sp. nov (D. Murányi)

T. Kovács, D. Murányi & P. Olajos (1 male, OPC). Paratype: same as holotype (1 male, OPC).

Diagnosis. This castanean brown species belongs to the species with large upward arching triangular gonopods inhabiting the Balkan Mountains. Most close to *Drusus juliae* Oláh, 2011, a member of the *D. discophorus* species complex in the *D. bosnicus* species group with a single robust, erected primary spine on the paramere. *D. gornistok* sp. nov. differs from *D. juliae* by the speciation trait of the paraproct that is characterized by the dorsal branch curving anterad, not upward in lateral view as well as its basal region constricted, not broadening in dorsal view; apical pattern of both the dorsal and ventral branches are more complex. Among the periphallic organ, the cerci stalked, not subquadratic and the gonopod with finger-like apical region, not gradually narrowing.

Description. Male (in alcohol). Dark castanean; cephalic and thoracic sclerites dark, almost black especially on the dorsum; cephalic and thoracic setose warts brown; appendages including legs except coxa and proximal portion of femur lighter brown, haustellum and intersegmental membranous teguments whitish. Spurs of male 1.3.3. Forewing length 12 mm.

Male genitalia. Posterodorsal black spinate area on tergite VIII slightly extended posteriorly, two-patched and armed with specialized peg-like setae; less pigmented oval area discernible between the patches and encircled anteriorly by the darker basic colour of the tergite. Segment IX longer ventrally; very short bridle-like dorsally; its lateral length elongated by rounded triangular lobe anterad, shifted ventrad; midlateral sclerotized strips of sternite IX not pronounced; vestige

of sternal lateral suture of the fused segment IX well developed and deeply downward curving in the middle. Segment X fused to tergite IX forming together the short dorsal bridle. Cerci are stalked in lateral view. Paraproctal complex forming a closed structure around the anal opening by the dorsal and ventral branches; the anterad directed obtuse dorsal apices of the dorsal branches short and diverting laterad into rounded lobes both in dorsal and caudal views; ventral branches of the paraproct spread laterad with straight bottom. Gonopods upward arching broad triangular large lobe with finger-like apical region in lateral view. Parameres slender with a single robust erected primary spine.

Etymology. Coined from the name of locus typicus, a noun in apposition.

Drusus malickyorum Oláh, 2017

Material examined. **Albania**, Bjeshkët e Nemuna Mts (= Prokletije Mts), Shala valley, Theth village, Okol hamlet, N42°24'48", E19°45'37", 840 m, 15.VIII.2018, S. Beshkov & A. Nahirnic leg (3 males, 1 female; OPC).

Drusus osogovicus Kumanski, 1980

Material examined. Holotype: original labels: **Bulgaria**, ♂ and 4 Paratypes (2♂♂ and 2♀♀): Ossogovska Mt. (SW Bulgaria), hostel „Osogovo", 1640 m a.s.l., 18-19.VI.1979, (leg. J. Ganev, at light), in the National Museum of Natural History, Sofia. Kyustendil province, Ossogovska planina, spruce forest brook below Trite buki hut, 42°10'27.78", 22°38'3.96", 5. VII. 2016, leg. K. Harmos, T. Kovács & G. Magos (2 females, OPC). Ossogovo Mts, below Ruen (=Autotransport) chalet, above Kyustendil town, N42.1743°, E022.6342°, 1512m, 19.VI.2020, leg S. Beshkov & A. Nahirnić (3 males, OPC). **Serbia**, Besna Kobila, Mosul, 28.VI.2016, leg. H. Ibrahimi (1 male, OPC). Sveti Nikola, 27.VI. 2016, leg. H. Ibrahimi (1 male, OPC). Besna Kobila Mts, Musulj, Crna stream, N42°31"00.4", E22°14'44.2", 22.V.2017, leg. P. Juhász, T. Kovács & P. Olajos (14 males, 2 females; OPC). Besna Kobila Mts, Musulj, left arm of the left tributary of Crna stream, N42°31'12.9", E22°14' 48.1", 1251 m, 22.V.2017, leg. P. Juhász, T. Kovács & P. Olajos (1 female, OPC). Besna Kobila Mts, Gornja Ljubata, Debeli Rid, stream, N42° 29'31.5", E22°15'14.7", 22. V. 2017, leg. P. Juhász, T. Kovács & P. Olajos (1 female, OPC). Besna Kobila Mts, Kriva Feja, Ruski Put, Stance stram, N42°32'15.5", E22°13'15.3", 22.V.2017, leg. P. Juhász, T. Kovács & P. Olajos (9 males, 6 females; OPC). Besna Kobila Mts, Kriva Feja SE 3860 m, Ruski Put, stream, N42°31'52.5", E22°12'15.2", 22. V. 2017, leg. P. Juhász, T. Kovács & P. Olajos (10 males, 3 females; OPC).

Remarks. Both in the lateral and caudal views of the paraproct we have detected some signs of divergences, the possible product of integrative organisation in isolation, between the populations sampled in Bulgaria at the locus typicus and in Serbia in the Besna Kobila Mountain and in Sveti Nikola of the Serbian Stara Planina.

Drusus popovi Kumanski, 1980

Material examined. **Serbia**, Pirot district, Pirot municipality, Stara Planina, Dojkinačka Stream below Tri kladenca Waterfall, N of Dojkinci, N43.31944°, E22.82193°, 1700 m, 24.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (1 male, 8 females; OPC).

Drusus serbicus Marinkovic, 1971

Material examined. **Serbia**, Moravica district, Ivanjica, Golija Mts, forest stream and its sidebrook along road No.197, 1500m, N43° 20.289', E20°15.059' leg. P. Juhász, T. Kovács & D. Murányi, 26.VI.2018 (2 males, 1 female; OPC). Raška district, Novi Pazar, Golija Mts, Radaljica, spring brooks in forest edge by the settlement 1595m, N43°16.495', E20°20.896' leg. P. Juhász, T. Kovács, D. Murányi, 26.VI.2018, (10 males, 13 females; OPC).

Drusus zivici Kucinic, Previsic, Stojanovic & Vitecek, 2017

Material examined. **Serbia**, Stara Planina Mts, Crni Vrh, Babin zub, Dojčino spring, N43° 22'00.3", E22°35'54.1", 1538 m, 24.V.2017, leg.

P. Juhász, T. Kovács & P. Olajos (4 males, 2 females; OPC). Stara Planina Mts, Ravno Bučje, Ravnobučka stream, N43°26'55.4", E22°34'13.6", 23.V.2017, leg. P. Juhász, T. Kovács & P. Olajos (2 females, OPC). Stara Planina Mts, Crni Vrh, Košarište NE 720 m, stream, N43°25'20.1", E22°35'55.4", 1115 m, 23.V.2017, leg. P. Juhász, T. Kovács & P. Olajos (1 male, OPC). Stara Planina Mts, Topli Do, Stimoljski dol, N43°21' 17.2", E22°44'40.8", 25.V.2017, leg. P. Juhász, T. Kovács & P. Olajos (7 males, 2 females; OPC). Stara Planina Mts, Crni Vrh, Babin zub, Rekitska stream, N43°22'52.0", E22°37'57.2", 1524 m, 24.V.2017, leg. P. Juhász, T. Kovács & P. Olajos (19 males, 10 females; OPC).

***Ecclisopteryx alkon* Oláh & Oláh, 2017**

Material examined. **Bulgaria**, Rila Mts, above Rila Monastery, Kirilova polyana, 1488m, N42.15519°, E023.40036°, 18.VII.2020, leg. S. Beshkov, A. Nahirnic & D. Kaynarov (14 males, 3 females; OPC). Rila Mts, Above Belmeken Reservoir, Rokerska Chuchura, N42.14619°, E23.76575°, 1937m, 15.VII.2020, leg. S. Beshkov, A. Nahirnic & D. Kaynarov (1 male, OPC).

***Ecclisopteryx madida* McLachlan, 1867**

Material examined. **Serbia**, Pomoravlje district, Despotovac municipality, Beljanica Mts, Strmosten, Lisine Izvor, 435 m, N44.10460°, E21.64099°, 22.IX.2021, leg. P. Juhász, T. Kovács, & D. Murányi (37 males, 61 females; OPC).

Limnephilinae Kolenati, 1848

Limnephilini Kolenati, 1848

***Glyphotaelius pellucidus* Retzius, 1783**

Material examined. **Bosnia & Herzegovina**, Bosnia, Sarajevo Region, above Konjic, N43° 38'50", E017°59'15", 652m, 2.VII.2017, leg. S. Beshkov & A. Nahirnic (2 males, OPC).

***Grammotaulius nigropunctatus* Retzius, 1783**

Material examined. **Bosnia & Herzegovina**, Bosnia, Sarajevo Region, above Konjic, N43° 38'50"; E017°59'15", 652m, 2.VII.2017, leg. S. Beshkov & A. Nahirnic (1 male, OPC)

***Limnephilus auricula* Curtis, 1834**

Material examined. **Bulgaria**, Ossogovo Mts below Ruen (= Autotransport) chalet, above Kyustendil town 1505m., N42°10'28", E22°37' 56.5", 23.IX.2018, at lamps, light traps, leg. S. Beshkov & A. Nahirnic (11 males, OPC).

***Limnephilus affinis* Curtis, 1834**

Material examined. **Albania**, S. Albania, Ionian Sea Coast, Butrint Lake, near the opening to Sea, N39°44'47", E019°59'49",18 m, 22.X.2017, leg. S. Beshkov & A. Nahirnic (10 males, 6 females; OPC).

***Limnephilus bipunctatus* Curtis, 1834**

Material examined. **Bulgaria**, Ossogovo Mts below Ruen (= Autotransport) chalet, above Kyustendil town 1505m., N42°10'28", E22°37' 56.5", 23.IX.2018, at lamps, light traps, leg. S. Beshkov & A. Nahirnic (11 males, OPC).

***Limnephilus coenosus* Curtis, 1834**

Material examined. **Bulgaria**, Blagojevgrad province, Pirin Mts, left side brook of Ribno Ezero, 41°44'31.9", 23°27'07.9", 7040 feet, 3. VII. 2016, leg. K. Harmos, T. Kovács & G. Magos (2 males, OPC). Rila Mts, Beli Iskar River Valley, above Beli Iskar Village, 1469m, N42.20767°, E023.55093°, 21.7.2020, leg.S. Beshkov, A. Nahirnic & D. Kaynarov (1male, OPC). Rila Mts, Tiha Rila above Rilski Monastir, N42.13837°, E023.47227°, 1972m, 19.VII.2020, leg. S. Beshkov, A. Nahirnic & D. Kaynarov (1 male, OPC).

***Limnephilus decipiens* (Kolenati), 1848**

Material examined. **Bulgaria**, Ossogovo Mts below Ruen (= Autotransport) chalet, above Kyustendil town 1505m., N42°10'28", E22°37' 56.5", 23.IX.2018, at lamps, light traps, leg. S. Beshkov & A. Nahirnic (1 males, OPC).

***Limnephilus extricatus* McLachlan, 1865**

Material examined. **Bulgaria**, Rila Mts, A-bove Belmeken Reservoir, Rokerska Chuchura, N42.14619°, E023.76575°, 1937m, 15.VII.2020, leg. S. Beshkov, A. Nahirnic & D. Kaynarov (1 male, OPC). **Montenegro**, Durmitor Mts, Zabljak distr., Uskocki Canyon, Pirlitor, Vrela, N43° 09'42", E019°13'53", 1273m, 5.VIII.2015, leg. S. Beshkov & A. Nahirnic (1 male, OPC).

***Limnephilus flavicornis* Fabricius, 1787**

Material examined. **Albania**, Prespa Lake, near Pustets Village, N40°46'14", E20°54'32", 849m. *Typha, Phragmitis, Mentha*, lake shore, 19.VIII.2017, lamps, light traps, leg. S. Beshkov & A. Nahirnic (1 male, 1 female; OPC). **Bulgaria**, Sofia Region, Dragoman distr., Tche-pun Hill, below Petrovski Krust summit, 1167m, 14.VIII.2020, N42.94797°, E022.95211°, leg. at light S. Beshkov (2 males, OPC).

***Limnephilus flavospinosus* Stein, 1874**

Material examined. **Albania**, Korçë Region, Morava Mt, above Dishnica village 1564m, N40°38'52", E020°51'28" 25.6.2017, mountain stony meadows, *Corylus, Polypodium*, etc, lamps, light traps, leg. S. Beshkov & A. Nahirnic, (1 males, OPC). Prespa Lake, near Pustets Village, N40°46'14", E020°54'32", 849m., *Typha, Phragmitis, Mentha*, lake shore, 19.VIII.2017, lamps, light traps, leg. S. Beshkov & A. Nahirnic (1 male, 1 female; OPC). Shkodra Region, Mal Kolaj, Velipoje distr. 0m, N41.9255, E019.4375, 29.IX.2018, at lamps and light traps, leg. Beshkov & A. Nahirnic (5 males, 2 females; OPC). **Montenegro**, Moraca River Valley, near Bioce Village, N42.52733°, E019.35492°, 195m, 6.X. 2019, leg. S. Beshkov & A. Nahirnic (14 males, 3 females; OPC).

***Limnephilus graecus* Schmid, 1965**

Material examined. **Albania**, Delvina Region, Syri i Kalter near Bistrica Village, 155 m, N39°55'23", E20°11'30", 23.X.2017, leg. S. Beshkov & A. Nahirnic (5 males, 2 females; OPC). Delvina Region, Muzina distr., near Dhrovjan N39°54'52", E020°12'06", 389 m, 21. X.2017, leg. S. Beshkov & A. Nahirnic (8 males, 6 females; OPC).

***Limnephilus griseus* (Linnaeus), 1758**

Material examined. **Macedonia**, Plachkovitza Mts between Beli Kamen Hotel and Lisec Village, 1328m, N41°44'41", E022°30'20", 24.IX.2018, lamps, light traps, leg. S. Beshkov & A. Nahirnic, (1 male, OPC).

***Limnephilus hirsutus* (Pictet), 1834**

Material examined. **Bulgaria**, Sredna Gora Mts, below Bratiya top, N42°35'35", E24°09'30", 1473 m, meadow above *Fagus* forest, 27.VII. 2017, lamps, light traps, leg. S. Beshkov & R. Bekchiev, (4 males, OPC).

***Limnephilus lunatus* Curtis, 1834**

Material examined. **Albania**, Librazhd Regi-on, Shkumbini River Valley, near Qukes, 287m, N41.1458°, E020.3766°, 29.X.2018, leg. S. Besh-kov & A. Nahirnic (13 males, 13 females; OPC). Librazhd Region, Shkumbini River Valley, near Qukes, N41.1458°, E020.3766°, 287m, 29.X. 2018, leg. S. Beshkov & A. Nahirnic (1 male, OPC). **Bulgaria**, Sredna Gora Mts, above Pirdop Town, 1380 m, N42°36'56", E24°12'58", 14.VIII. 2017, *Fagus* forest, lamps, light traps, leg.S. Beshkov & R. Bekchiev, (1 male, OPC). Sredna Gora Mts, below Bratiya top, N42°35'35", E24°09'30", 1473 m, meadow above *Fagus* forest, 27.VII.2017, lamps, light traps, leg. S. Beshkov & R. Bekchiev (1 male, OPC).

Limnephilus marmoratus Curtis, 1834

Material examined. **Albania**, Bjeshkët e Nemuna Mts. (=Prokletije Mts), Radohima Mt., between Qafa e Thorës pass and Theth village, south-east of Shtegu peak, N42°23'04", E19°45' 25", 1562 m, 15.VIII.2018, leg. C. Plant (1 male, OPC). Albania, Lushnja Region, above Ardenica Village, N40.8265°, E19.5882°, 127m, 2.XI. 2018, leg.S. Beshkov & A. Nahirnic (1 male, OPC). **Montenegro**, Durmitor Mts, Nadgorje, N43°11'33", E019°02'39", 1735m, 6.VIII.2015, leg. S. Beshkov & A. Nahirnic (5 males, 3 females; OPC).

Limnephilus rhombicus Linnaeus, 1758

Material examined. **Albania**, Elbasan county, Librazhd municipality, open stream and its sidebrooks in Fushë Studë, N41°18.427', E20° 23.039', 1105m, 1.VII.2018 leg. P. Juhász, T. Kovács, D. Murányi, (6 males, OPC). **Bulgaria**, between Ponor and Bezden Villages, Kostinbrod distr., 913m, N42.91343°, E23.09819°, 22.VIII. 2020, leg. light trap S. Beshkov & V. Gashtarov (1 male, OPC).

Limnephilus sparsus Curtis, 1834

Material examined. **Bulgaria**, Strandzha Mts, Near Slivarovo Village, N41°58'20", E27°39'27", 376m, 10.X.2014, leg. S. Beshkov (6 males, OPC). **Macedonia**, Plachkovitza Mts between Beli Kamen Hotel and Lisec Village, 1328m, N41°44'41", E22°30'20", 24.IX.2018, lamps, light traps, leg. S. Beshkov & A. Nahirnic, (1 male, 2 females; OPC).

Limnephilus stigma Curtis, 1834

Material examined. **Serbia**, W Serbia, Prijepole Region, Zvijezda, Savina Voda near Jabuka, N43°22'03", E019°33'07", 1117m, 16.VII.2014, leg.S. Beshkov (1 male, OPC).

Chaetopterygini Hagen, 1858

Annitella triloba Marinkovic, 1955

Material examined. **Macedonia**, Pelagonia region, Bitola municipality, Pelister Mts, Capari, spring area of Caparska Stream, 1955 m, N41°00.227', E21°10.075', 3.X.2017,, leg. P. Juhász, T. Kovács & D. Murányi (3 males, 1 female; OPC).

Chaetopteroides kosovarorum Ibrahimi & Oláh, 2013

(Map 5, Photos 7–10)

Material examined. **Serbia**, Pčinja district, Vranje municipality, Besna Kobila Mts, Stance Stream along Ruski Put, N42°32'14.7114", E22° 13'15.6714", 1525 m, 25.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (4 males, 5 females; OPC). Pčinja district, Bosilegrad municipality, Besna Kobila Mts, Crna Stream W of Musulj, N42.51688°, E22.24835°, 1210 m, 25.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (2 males, 2 females; OPC). Pčinja district, Bosilegrad municipality, Besna Kobila Mts, forest spring along Ruski Put, N42.53086°, E22.26580°, 1320 m, 25.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (2 males, 4 females; OPC). Zaječar district, Knjaževac municipality, Stara Planina, Tri kid. Spring on Mt. Midžor, N43.40012°, E22.66437°, 1945 m, 23.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (4 males, 9 females; OPC). Zaječar district, Knjaževac municipality, Stara Planina, open brooks on Mt. Midžor, N43.39002°, E22.67431°, 1885 m, 23.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (6 males, 14 females; OPC). Zaječar district, Knjaževac municipality, Stara Planina, Mt. Babin zub, Dojčino Vrelo, N43.36670°, E22.59922°, 1560 m, 23.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (3 males, 2 females; OPC). Pirot district, Pirot municipality, Stara Planina, forest brook N of Jelovica/Široke Luke, N43°15'32.256", E22° 50'43.6914", 1050 m, 24.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (2 females, OPC). Pirot district, Pirot municipality, Stara Planina, Dojkinačka Stream below Tri kladenca Waterfall, N of Dojkinci, N43.31944°, E22.82193°, 1700 m, 24.IX.2021, leg. P. Juhász, T. Kovács & D. Murányi (1 male, 6 females; OPC).

Remarks. In our previous studies on the *Chaetopteroides* genus we have recorded or described

seven species from different isolated mountain ranges (Oláh *et al.* 2013, Oláh *et al*. 2019): *Chaetopteroides maximus* (Kumanski, 1968): Vitosha Mt., Bulgaria; *Ch. bulgaricus* (Kumanski, 1969): Pirin Mts., Bulgaria; *Ch. kosovarorum* Ibrahimi & Oláh, 2013: described from the Kosovo territory of the Kopaonik Mts., Kosovo; *Ch. plackovicensis* Oláh & Ibrahimi, 2019: Plackovica Mts., Macedonia; *Ch. rilaensis* Oláh, 2019: Rila Mts., Bulgaria; *Ch. tunik* Oláh, 2013: Kožuf Mts., Macedonia; *Ch. veges* Oláh, 2013: Osogovska Mts., Bulgaria.

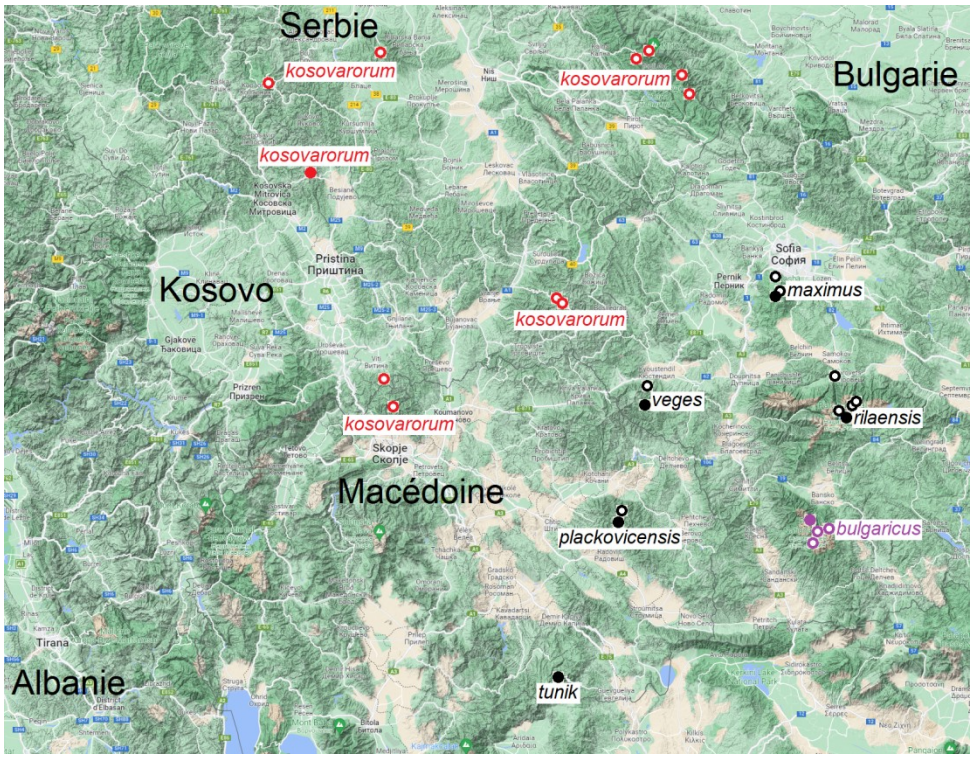
Based upon the commonality, generality and locality ranking principles we have concluded that *Chaetopteroides kosovarorum* seems to represent the ancestral species in the genus. It has the largest distributional area covering several mountain ranges in Serbia, Kosovo and Macedonia. The distribution of the other six species is very isolated and restricted to a single mountain range along the eastern distributional periphery of the putative ancestral species (Oláh *et al.* 2019). The present records of *C. kosovarorum* in the northern region of Serbia in Besna Kobila and Stara Planina mountains further increase the known distributional area of this ancestral species.

***Chaetopteroides rilaensis* Oláh, 2019**

(Map 5)

Material examined. **Bulgaria**, Blagoevgrad Region, under Granchar Chalet, Rila Mts. N42.116713°, E23.612181°, 2131 m, 23.VIII. 2020, leg. D. Kaynarov (1 male, OPC).

Remarks. *Chaetopteroides bulgaricus* Kumanski, 1969 reported from the Rila Massif (Oláh *et al.* 2013) in fact belong to *Chaetopteroides rilaensis* Oláh, 2019; therefore *Ch. rilaensis* Oláh, 2019 is probably restricted to the Rila Massif while *C. bulgaricus* Kumanski, 1969 is probably restricted to the Pirin Massif (Map 5).



Map 5. Distribution of the *Chaetopteroides* genus.

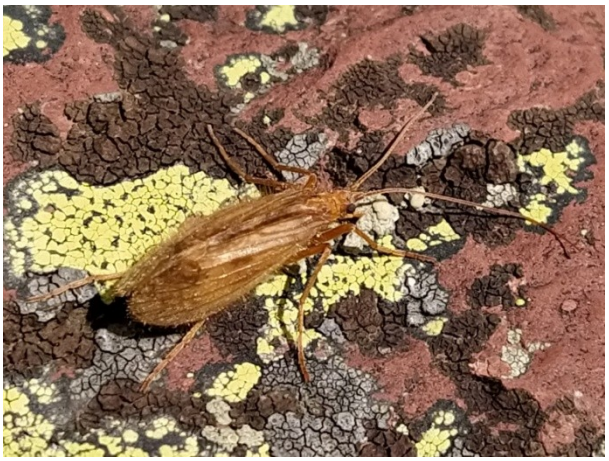


Photo 7. *Chaetopteroides kosovarorum* Ibrahimi & Oláh, 2013 (T. Kovács)

Photo 8. Open springs area of Mt. Midžor in Stara Planina, Serbia (T. Kovács)

Photo 9. Open brooks on Mt. Midžor, 1885 m in Stara Planina, Serbia (T. Kovács)

Photo 10. Dojkinačka Stream below Tri kladenca Waterfall, 1700 m in Stara Planina, Serbia (T. Kovács)

***Chaetopteryx bosniaca* Marinkovic, 1955**

Material examined. **Macedonia**, Vardar region, Čaška municipality, Golešnica Mts, Gorno Jabolčište, forest brook and open brook N of the village, 1285 m, N41°44.951', E21°29.230', 6.X. 2017, leg. P. Juhász, T. Kovács & D. Murányi (2 males, 1 female; OPC).

***Chaetopteryx stankovici* Marinkovic, 1966**

Material examined. **Albania**, Tirana Region, Dajt Mt, Shkalla Village, 893m, N41°19'49", E019°57'55", 24.X.2017, leg. S. Beshkov & A. Nahirnic (1 male, OPC). **Macedonia**, Eastern region, Vinica municipality, Plačkovica Mts, Lumen (Lomija) Stream beneath Mt. Lisec, 1170 m, N41°45.858', E22°30.995', 5.X.2017, leg. P. Juhász, T. Kovács & D. Murányi (1 male, 7 females; OPC). Vardar region, Čaška municipality, Golešnica Mts, Gorno Jabolčište, forest brook and open brook N of the village, 1285 m, N41° 44.951', E21°29.230', 6.X.2017, leg. P. Juhász, T. Kovács & D. Murányi (9 males, OPC).

***Psilopteryx montanus* Kumanski, 1968**

Material examined. **Macedonia**, Pelagonia region, Bitola municipality, Pelister Mts, spring area of Ezerska Stream beneath Golemo Ezero,

2200 m, N40°58.142', E21°12.431', 3.X.2017, leg. P. Juhász, T. Kovács & D. Murányi (1 male, 7 females; OPC). Pelagonia region, Bitola municipality, Pelister Mts, spring area of Ezerska Stream beneath Golemo Ezero, 2200 m, N40° 58.142', E21°12.431', 3.X.2017, leg. P. Juhász, T. Kovács & D. Murányi (1 male, OPC). Southeastern region, Radoviš municipality, Plačkovica Mts, forest brook beneath Beli Kamen resorts, 1335 m, N41°44.672', E22°30.356', 5.X.2017, leg. P. Juhász, T. Kovács & D. Murányi (6 males, 1 female; OPC). Pelagonia region, Bitola municipality, Pelister Mts, Capari, spring area of Caparska Stream, 1955 m, N41°00.227', E21° 10.075', 3.X.2017, leg. P. Juhász, T. Kovács & D. Murányi (8 males, 3 females; +1 male malformed! OPC).

Stenophylacini Schmid, 1955

Allogamus uncatus Brauer, 1857

Material examined. **Macedonia**, Pelagonia region, Bitola municipality, Pelister Mts, spring area of Ezerska Stream beneath Golemo Ezero, 2200 m, N40°58.142', E21°12.431', 3.X.2017, leg. P. Juhász, T. Kovács & D. Murányi (7 males, 2 females; OPC). Pelagonia region, Bitola municipality, Pelister Mts, Dva Groba, spring of Maloviška Stream, 2060 m, N40°59.113', E21° 10.100', 3.X.2017, leg. P. Juhász, T. Kovács & D. Murányi (3 males, OPC). Pelagonia region, Bitola municipality, Pelister Mts, Capari, spring area of Caparska Stream, 1955 m, N41°00.227', E21° 10.075', 3. X. 2017, leg. P. Juhász, T. Kovács & D. Murányi (13 males, 32 females; OPC).

Enoycila costae Mclachlan, 1876

Material examined. **Albania**, Berat Region, between Ibrolara and Vale, Polican distr., 217m, N40°33'36", E020°05'38" 16.X.2016, leg. S. Beshkov & A. Nahirnic (1 male, OPC). Librazhd Region, Shkumbini River Valley, near Qukes, 287m, N41.1458°, E20.3766°, 29.X.2018, leg. S. Beshkov & A. Nahirnic (2 males, OPC).

Halesus digitatus Schrank, 1781

Material examined. **Albania**, Mt. Thanës, near Bulqizë town, above Plani i Bardhë village, N41°28'35", E20°09'18", 788 m, 17.VIII.2018, leg. S. Beshkov, A. Nahirnic & C. Plant (1 female, OPC).

Mesophylax impunctatus McLachlan, 1884

Material examined. **Greece**, Peloponessos, Chelmos Mts, between Kalavrita and Peristera, 1776m, N38°01'48", E022°13'06", 11.5.2017, mountain steppe, *Astragalus*, light traps leg. S. Beshkov & A. Nahirnic (1 male, OPC).

Parachiona picicornis Pictet, 1834

Material examined. **Romania**, Vâlcea county, Parâng Mts, Obrâşia Lotrului, open spring area, 500 m along Transalpina (67C) road, downstream from 45°22'27.7", 23°39'4.0", 1915 m, 30.VI. 2016, leg. J. Oláh & J. Oláh jr. (5 males, 2 females; OPC). Romania, Lotru Mts, Obirsia Lotrului, 1578 m, N45.463°, E23.620°, 29.VI. 2016, singled leg. J. Oláh & J. Oláh jr. (7 males, OPC).

Potamophylax depilis Szczesny, 1994

Material examined. **Bulgaria**, Sredna Gora Mts, near Panagyurski Kolonii, 1119m, N42°35' 28"; E024°13'34", 13.VIII.2017, meadow in *Fagus* forest, lamps, light traps, leg. S. Beshkov & R. Bekchiev (1 male, OPC).

Potamophylax fules Oláh & Ibrahimi, 2013

Material examined. **Romania**, Vâlcea county, Parâng Mts, Obrâşia Lotrului, open spring area, 500 m along Transalpina (67C) road, downstream from N45°22'27.7", E23°39'4.0", 1915 m, 30.VI. 2016, leg. J. Oláh & J. Oláh jr. (1 male, OPC). **Serbia**, Stara Planina Mts, Crni Vrh, Košarište NE 720 m, stream, N43°25'20.1",E22°35'55.4", 1115 m, 23. V. 2017, P. Juhász, T. Kovács & P. Olajos (3 males, 6 females; OPC).

***Potamophylax goulandriorum* Malicky, 1975**

Material examined. **Albania**, Delvina Region, Syri i Kalter near Bistrica Village, 155 m, N39° 55'23", E020°11'30" 23.X.2017, leg. S. Beshkov & A. Nahirnic (3 males, 4 females; OPC).

***Potamophylax gurunaki* Malicky, 1992**

Material examined. **Macedonia**, Pelagonia region, Bitola municipality, Pelister Mts, Dva Groba, spring of Maloviška Stream, 2060 m, N40°59.113', E21°10.100', 3.X.2017, leg. P. Juhász, T. Kovács & D. Murányi (15 males, 16 females; OPC).

***Potamophylax latipennis* Curtis,1834**

Material examined. **Romania**, Hargita Mts, 7.IX.2017, singled, leg. J. Oláh jr. (3 males, OPC).

***Potamophylax luctuosus* Piller & Mitterpacher, 1783**

Material examined. **Romania**, Lotru Mts, Obirsia Lotrului, 1578 m, N45.463°, E23.620°, 29.VI.2016, light trap, J. Oláh & J. Oláh jr. (1 male, OPC). **Bulgaria**, W Stara Planina Mts. Gushovski Monastir above Tchiprovtzi Town, N43.3661°, E022.8402°, 808 m, 26.VI.2021, leg. S. Beshkov & A. Nahirnic-Beshkova (2 males, OPC)

***Potamophylax millenii* Klapalek, 1842**

Material examined. **Romania**, Dambovița county, Southern Carpathians, Bucegi Mts. Brătei stream valley, Negru stream, N45.38328°, E25.350528°, 14. VII. 2016 leg. Z. Baczo & J. Kecskés (4 males, 1 female; OPC).

***Potamophylax nigricornis* (Pictet, 1834)**

Material examined. **Romania**, Dambovița county, Southern Carpathians, Bucegi Mountains, Brătei stream valley, Negru stream, N45.383283°, E25.350528°, 14. VII. 2016 leg. Z. Baczo & J. Kecskés (1 male, 1 female; OPC). Dambovița county, Southern Carpathians, Bucegi Mountains, Brătei stream valley, Negru stream, N45.383424°, E25.389155°, 14. VII. 2016 leg. Z. Baczo & J. Kecskés (1 male, OPC). Bucegi Mts. Lalomita stream, N45.425296, E25.444064, 1917 m, 15. VII. 2015, leg. Z. Baczó & J. Kecskés (2 males, 1 female; OPC). Vâlcea county, Parâng Mts, Obrâșia Lotrului, open spring area, 500 m along Transalpina (67C) road, downstream from N45° 22'27.7", N23°39'4.0", 1915 m, 30.VI.2016, leg. J. Oláh & J. Oláh jr. (1 male, OPC).

***Potamophylax seprus* Olah, Lodovici, & Valle, 2011**

Material examined. **Albania**, Tirana Region, Mali me Gropa Mts, NW of Qafa e Selites Pass, N41.37706°, E20.01645°, 1222m, 1.X.2019, leg. S. Beshkov & A. Nahirnic (1 male, OPC).

Remarks. This species was described from a single male specimen collected in the Tomor Mts., Skrapar Region, Albania. The single male from Mali me Gropa Mts., Albania is the second known specimen of this large sized and rare *Potamophylax* species.

***Rhadicoleptus macedonicus* Botosaneanu & Riedel, 1965**

Material examined. **Bulgaria**, Rila Mts, Tiha Rila above Rilski Monastir, N42.13837°, E23.47227°, 1972m, 19.VII.2020, leg. S. Beshkov, A. Nahirnic & D. Kaynarov (2 males, OPC).

***Stenophylax caesareicus* Schmid, 1959**

Material examined. **Bulgaria**, Eastern Rhodopi Mts, near Zvezdel Village, 616m, N41° 28'25", E025°31'48", 18.V.2018, leg. S. Beshkov (7 males, 10 females; OPC). Rila Mts, Beli Iskar River Valley, above Beli Iskar Village, 1469m, N42.20767°, E023.55093°, 21.7.2020, leg. S. Beshkov, A. Nahirnic & D. Kaynarov (1 male, OPC). **Greece**, Peloponessos, Taygetos Mts, Sparti region, Taygetos refuge, below Profitis Ilias peak, 1561m, N36°57'00", E22°22'02" 08.

V.2017, leg. S. Beshkov & A. Nahirnic (8 males, 6 females; OPC).

***Stenophylax fissus* McLachlan, 1875**

Material examined. **Albania**, Gjirokastër county, Finiq municipality, Syri i Kaltër spring, N39°55'23", E20°11'30", 155 m, 03.XI.2018, leg. S. Beshkov & A. Nahirnic (2 males, OPC). Shkodra Region, Stara Village, Hot district, 496m, N42.3711°, E019.4703°, 4.XI.2018, leg. at lamps and light traps, S. Beshkov & A. Nahirnic (2 males, OPC). **Greece**, Peloponessos, Chelmos Mts, between Kalavrita and Peristera, 1776m, N38°01'48", E022°13'06", 11.5.2017, mountaine steppe, *Astragalus*, light traps leg. S. Beshkov & A. Nahirnic (1 male, 1female; OPC).

***Stenophylax meridiorientalis* Malicky, 1980**

Material examined. **Montenegro**, Moraca River Valley, near Bioce Village, N42.52733°, E019.35492°, 195m, 6.X.2019, leg. S. Beshkov & A. Nahirnic (1 male, OPC). **Serbia**, E. Serbia, Bela Palanka District, Slivovicki Vis, above Slivovic village, 925m, N43°08'29", E22°23'12" 21.6.2017, *Artemisia alba*, limestone meadow, lamps, light traps leg. S. Beshkov, A. Nahirnic, C. Plant & P. Jaksic (3 males, 1 female; OPC).

***Stenophylax mitis* McLachlan, 1875**

Material examined. **Macedonia**, Petrina Planina - Galichicha, between Ochrid and Velestovo, 1005m, N41°05'26", E20°49'38" 9.VI. 2018, leg. S. Beshkov & A. Nahirnic (1 male, OPC). **Serbia**, E. Serbia, Bela Palanka District, Slivovicki Vis, above Slivovic village, 925m, N43°08'29", E22°23'12" 21.6.2017, *Artemisia alba*, limestone meadow, lamps, light traps leg. S. Beshkov, A. Nahirnic, C. Plant & P. Jaksic (2 males, 4 females; OPC).

***Stenophylax nycterobius* McLachlan, 1875**

Material examined. **Serbia**, E. Serbia, Bela Palanka District, Slivovicki Vis, above Slivovic village, 925m, N43°08'29", E022°23'12", 21.VI. 2017, *Artemisia alba*, limestone meadow, lamps, light traps leg. S. Beshkov, A. Nahirnic, C. Plant & P. Jaksic (7 males, 5 females; OPC).

***Stenophylax permistus* McLachlan, 1895**

Material examined. **Serbia**, E. Serbia, Bela Palanka District, Slivovicki Vis, above Slivovic village, 925m, N43°08'29", E22°23'12" 21.VI. 2017, *Artemisia alba*, limestone meadow, lamps, light traps leg. S. Beshkov, A. Nahirnic, C. Plant & P. Jaksic (1 male, 1 female; OPC).

***Stenophylax sequax* McLachlan, 1875**

Material examined. **Bulgaria**, Rila Mts, above Rila Monastery, Kirilova polyana, 1488m, N42.15519°, E023.40036°, 18.VII.2020, leg. S. Beshkov, A. Nahirnic & D. Kaynarov (1 male, OPC). Rila Mts, Above Belmeken Reservoir, Rokerska Chuchura, N42.14619°, E23.76575°, 1937m, 15.VII.2020, leg. S. Beshkov, A. Nahirnic & D. Kaynarov (1 male, OPC). **Serbia**, E. Serbia, Bela Palanka District, Slivovicki Vis, above Slivovic village, 925m, N43°08'29", E22°23'12", 21.6.2017, *Artemisia alba*, limestone meadow, lamps, light traps leg. S. Beshkov, A. Nahirnic, C. Plant & P. Jaksic (1 male, 1 female; OPC).

***Stenophylax tauricus* Schmid, 1964**

Material examined. **Albania,** Elbasan county, Librazhd municipality, open stream and its sidebrooks in Fushë Studë, 1105m, N41°18.427', E20°23.039' leg. P. Juhász, T. Kovács, D. Murányi, 1.VII.2018 (1 male, 2 females; OPC).

***Stenophylax wageneri* Malicky, 1971**

Material examined. **Albania**, Shkodra Region, Stara Village, Hot district, 496m, N42.3711°, E19.4703°, 28.IX.2018, at lamps and light traps, leg. S. Beshkov & A. Nahirnic (3 males, OPC). Shkodra Region, Stara Village, Hot district, 496m, N42.3711°, E19.4703°, 4.XI.2018, leg. at lamps and light traps S. Beshkov & A. Nahirnic (3 males, OPC). **Montenegro**, Moraca River Valley, near Bioce Village, N42°31'38.3874",

E19°21'17.64", 195m, 6.X.2019, leg. S. Beshkov & A. Nahirnic (4 males, OPC).

Beraeidae Wallengren, 1891

Beraea pullata Curtis, 1834

Material examined. **Romania**, Lotru Mts, Obirsia Lotrului, 1578 m, N45.463°, E23.620°, 29.VI.2016, singled leg. J. Oláh & J. Oláh jr. (1 female, OPC).

Beraea zawadil Malicky, 1977

Material examined. **Albania**, Gjirokastër county, Dropull municipality, Tsamantas Mts, Sotirë, stream in the village, 480m, N39°49.199', E20°21.654'leg. P. Juhász, T. Kovács, D. Murányi, 29.VI.2018 (2 males, 3 females; OPC).

Beraeamyia hrabei Mayer, 1937

Beraeamyia hraběi Mayer, 1937:35, 38 (original description).
Beraeamyia Hraběi: Mayer 1938a: 58–60 (redescription of male in German).
Beraeamyia Hraběi: Mayer 1938b: 5–8/12–14 (diagnosis, redescription of male).
Beraeamyia hraběi: Botosaneanu 1961: 66 (description of female).
Beraeamyia hraběi: Botosaneanu & Sýkora 1963:132–134 (description of pupa).

Type material examined: Syntype: male (NMPC): „*Beraeamyia hraběi* / 1♂ - Frývald 24.VI.36". Type locality: N Slovakia, Rajecká Lesná (=Frývald) ca. 22 km SSW of Žilina, ca. 49°02N, 18°42E, ca. 620 m.

Other material examined: **Bulgaria**, Stara Planina, Ogosta River, spring, 4.VII.1977, leg I. Janeva (2 females, OPC). Central Stara Planina Mts, Elenova Gora reserve near Skobelevo Village, Mazalat Forestry, N42°44'34", E25°08'50", 872m, 1.VIII.2014, leg. S. Beshkov (1 male, OPC). **Czech Republic**, SE Moravia, Bílé Krapaty Mts, right tributary of Klanečnice stream 1.7 km SW of Strání, N48°53'48", E17°41'13", 460–500 m, 9.VII.2010, leg. P. Chvojka (1 female, NMPC); the same but 9.VII.–12.VIII.2010, Malaise trap, leg. P. Chvojka & J. Macek (1 male, NMPC). **Slovakia**, N Slovakia, Malá Fatra Mts, slope of Kľak Mt. 25 km SSW of Žilina, ca. N49°00', E18°39', *ca*. 600 m, 6.VII.1937, K. Mayer leg. (original label: „Beraeamyia / Hraběi Mayer ♀ / Klak 6.VII.37"), (1 female, NMPC). E Slovakia, Bukovské vrchy Hills, Zbojský potok stream above Nová Sedlica 27 km ENE of Snina, N49°03'23", E22°30'27", 430 m, 15.VII.1990, leg. P. Chvojka (1 male NMPC).

Remarks: We have collected a single male and two female specimens from Stara Planina Mts. Bulgaria very far from the locus typicus of this interesting species. We have decided to compare the fine phenomics of both the male and female with the type specimens.

The description of *Beraeamyia hrabei* Mayer was based on three male specimens (syntypes) from Northern Slovakia („Lučanka near Liptovský Sv. Mikuláš" and „Frývald") (Mayer 1937). Mayer's collection was deposited in Masaryk University, Brno, Czech Republic, it is quite well preserved and organized but probably incomplete. We were able to discover only a single syntype from „Frývald" (=Rajecká Lesná), the remaining two syntypes are seemingly missing. The single syntype as well as the whole Mayer's collection will be deposited in the National Museum, Prague, Czech Republic (NMPC).

We have recorded remarkable shape stability in both the male and female genital structures between all the compared specimens. Slight differences are discernible only in the terminal lobe structure of the digitiform pair of processes on the basal plate of the gonopods. However, population samples with more specimens from more populations are required to quantify the stability and variability of the trilobed terminal structure of the basal plate processes.

Beraeamyia kutsaftikli Malicky, 1975

Material examined. **Albania**, Gjirokastër county, Dropull municipality, Tsamantas Mts, Sotirë, stream in the village, 480m, N39°49.199', E20°21.654'leg. P. Juhász, T. Kovács, D. Murányi, 29.VI.2018 (3 males, OPC).

Beraeamyia schmidi Botosaneanu, 1960

Material examined. **Albania**, Delvina Region, between Bistrica Village and Syri i Kalter, 127 m, N39°55'53", E20°09'13"13.V.2017, leg. S. Beshkov & A. Nahirnic (1 male, OPC).

Sericostomatidae Stephens, 1836

Notidobia Stephens, 1829

The genital structure of the *Notidobia* genus is characterized by compact lateral profile of the sagittaly flattened gonopod without any splitting, but with ventro-basomesal and/or ventromarginal spine-like processes as well as well sclerotized paraproct. According to the paraproct structure there are two species groups in the genus. (1) Species group with paraproct of downward directed head represented by the type species of the genus widely distributed in entire Europe and nominate species of the group: *Notidobia ciliaris* Linnaeus, 1761 and by the diversified *Notidobia nekibe* species complex of ten species having downward directed hook-formation on the parapoct head. (2) Species group with well separated and heavily sclerotized pair of upward directed paraprocts: *Notidobia demelti* Malicky, 1974 represented by three species distributed in the Caucasus and Turkey.

Notidobia nekibe new species complex

(Map 6)

Notidobia nekibe new species complex in the *Notidobia* genus is a well defined taxon characterized by very specialized paraproct having a pair of downward curving heavily sclerotized hook formation on the apical region. This hook formation is lacking in all of the known 23 extant and 4 extinct genera of the Sericostomatidae family distributed in all faunal regions except Australasia. Based on the ventro-basomesal and/or ventromarginal spine-like processes on the gonopod there are three lineages in the complex: (1) *Notidobia nekibe* lineage, the nominate single species of this lineage has only a pair of ventro-basomesal spine-like processes on the gonopod. (2) *Notidobia melanoptera* lineage has ventro-basomesal and ventromarginal spine-like processes on the gonopod represented by five species: *Notidobia kerkina* sp. nov., *N. lakmosa* sp. nov., *N. melanoptera* Stein, 1863, *N. salihli* Malicky & Sipahiler, 1993, *N. vaillanti* sp. nov. (3) *Notidobia bizensis* lineage has ventro-basomesal and basad moved ventromarginal spine-like processes on the gonopod represented by three species: *Notidobia bizensis* Malicky & Sipahiler, 1993 *N. koraba* sp. nov., *N. nogradorum* Oláh, 2010.

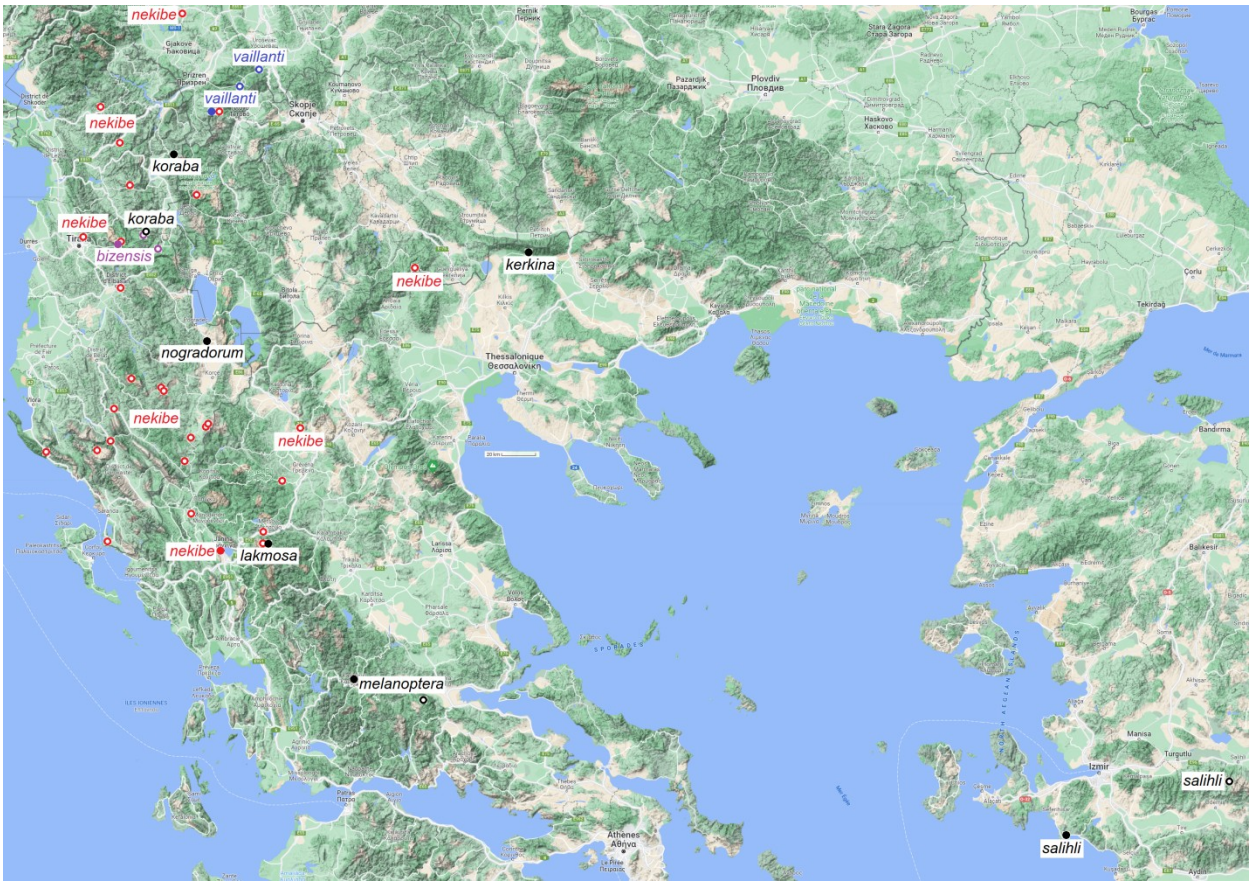
Notidobia bizensis Malicky & Sipahiler, 1993

(Figures 32–34, Map 6)

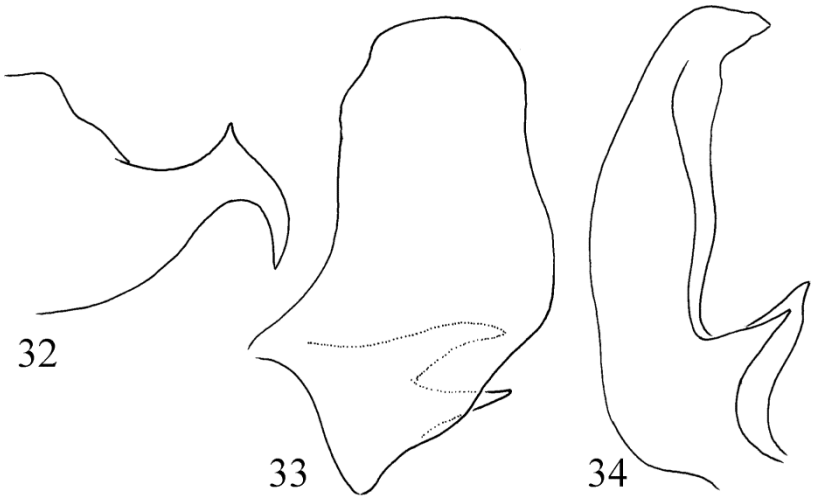
Notidobia bizensis Malicky & Sipahiler, 1993:472–473: „Holotypus ♂: Albanien, Bize bei Shengjergji = Shëngjergj, 1400–1500 m, 10–15.VII.1961."

Material examined. **Albania**, Elbasan county, Librazhd municipality, open stream and its sidebrooks in Fushë Studë, 1105m, N41°18.427', E20°23.039', leg. P. Juhász, T. Kovács, D. Murányi, 1.VII.2018 (1 male, 1 female; OPC). Bulqizë district, Çermenike Mts. open brook beneath Mt. Kaptine, N41°23.212', E20°17.506', 1610 m, 21.VI.2012, leg. Z.Fehér, T.Kovács & D. Murányi (1 male, 3 females; OPC). Bulqizë district, Çermenike Mts. open brook beneath Mt. Kaptine, N41°23.199', E20°17.338', 1600 m, 21.VI.2012, leg. Z. Fehér, T. Kovács & D. Murányi (2 females, OPC).

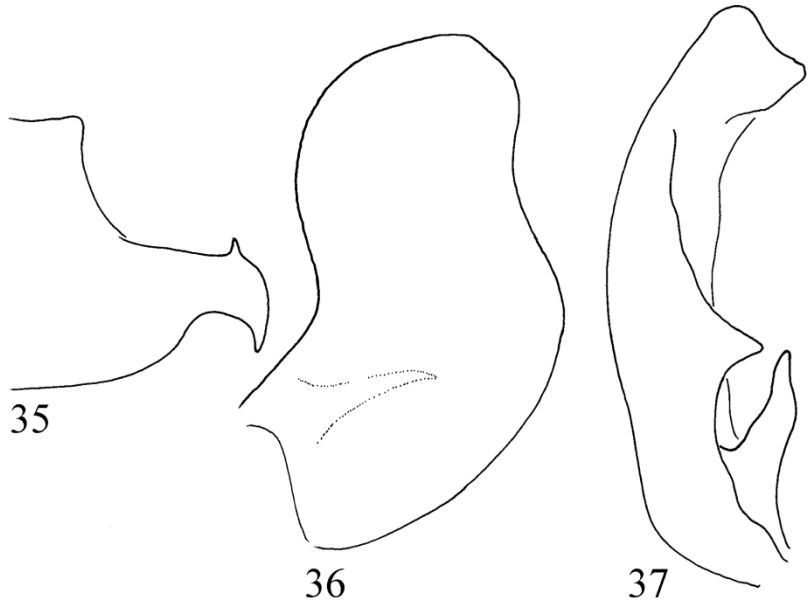
New diagnosis. Most close to *Notidobia nogradorum* Oláh, 2010, but differs by the more pointed dorsal and upward directed spine-like process on the terminal hook-formation of the paraproct and the hook is smaller. The lateral profile of the gonopod differently shaped as well as in lateral view the ventro-basomesal and ventromarginal spine-like processes are separated only on the apical half having a long fused basal region forming together a common basement, not deeply split.



Map 6. Distribution of the new *Notidobia nekibe* species complex



Figures 32–34. *Notidobia bizensis* Malicky & Sipahiler, 1993. Male: 32 = paraproct in lateral view; 33 = left gonopod in left lateral view; 34 = left gonopod in ventral view.



Figures 35–37. *Notidobia kerkina* Oláh, sp. nov. Holotype male: 35 = paraproct in lateral view; 36 = left gonopod in left lateral view; 37 = left gonopod in ventral view.

***Notidobia kerkina* Oláh, sp. nov.**

(Figures 35–37, Map 6)

Notidobia salihli Malicky & Sipahiler, 1993: Oláh 2010:113, misidentification.

Material examined. Holotype: **Greece**, Serres county, Kerkini Mts. Ano Poroia, stream and spring in a platan forest, 511 m, N41° 17.637' E23° 02.187', 30.III.2007, leg. L. Dányi, Z. Erőss, Z. Fehér, J. Kontschán & D. Murányi (1 male, HNHM).

Diagnosis. Most close to *Notidobia salihli* Malicky & Sipahiler, 1993, but differs by the more pronounced pointed dorsal spine-like process on the terminal hook-formation of the paraproct and the hook is less rounded apicad. The lateral profile of the gonopod almost regular S-shaped as well as in lateral view the ventro-basomesal spine-like process is small, not long.

Description. Male (in alcohol). Dark castanean species. Cephalic and thoracic sclerites dark brown, almost black especially on the dorsum; appendages including legs lighter brown; haustellum and intersclerital membranous teguments whitish. Forewing length 11 mm; wing membrane brown, densely covered with decumbent setae.

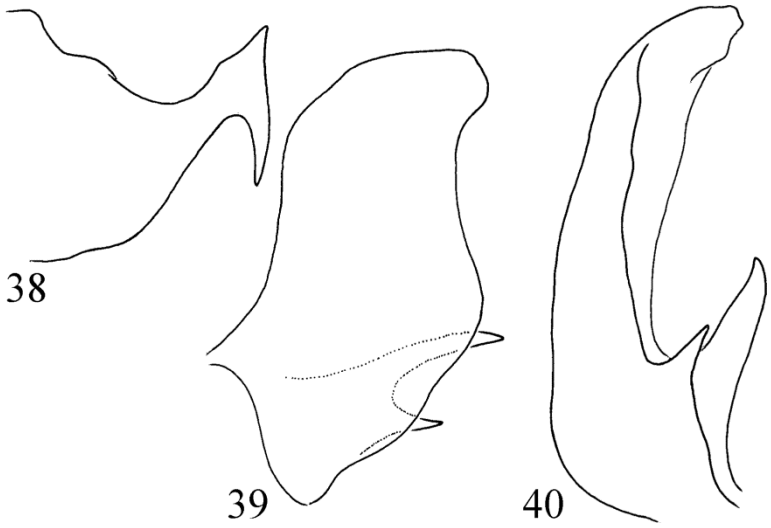
Male genitalia. The dorsal spine-like process on the terminal hook-formation of the paraproct pointed pronounced and the hook apical margin directed almost straight ventrad. The lateral profile of the gonopod regular S-shaped as well as in lateral view the ventro-basomesal spine-like process is small, the marginal spine-like process is shifted midway, short and blunt.

Etymology. Coined after the name of locus typicus, a noun in apposition.

***Notidobia koraba* Oláh, sp. nov.**

(Figures 38–40, Map 6)

Material examined. Holotype: **Albania**, Dibër county, Korab Mts, spring and stream, 1.5 km E of Radomirë, 1440 m, N41°49.032', E20°30.016', 26.VI.2007, leg. L. Dányi, Z. Erőss, Z. Fehér, A. Hunyadi & D. Murányi (1 male, HNHM). Paratypes: same as holotype (3 males, 6 females; HNHM). Albania, Bulqizë district, Çermenikë Mts. open brook beneath Mt. Kaptine, N41° 23.212', E20°17.506', 1610 m, 21.VI.2012, leg. Z. Fehér, T. Kovács & D. Murányi (2 males, 2



Figures 38–40. *Notidobia koraba* Oláh, sp. nov. Holotype male: 38 = paraproct in lateral view; 39 = left gonopod in left lateral view; 40 = left gonopod in ventral view.

females; OPC). Bulqizë district, Çermenikë Mts. open brook beneath Mt. Kaptine, N41°23.199', E20°17.338', 1600 m, 21.VI.2012, leg. Z. Fehér, T. Kovács & D. Murányi (2 females, OPC).

Diagnosis. Most close to *Notidobia bizensis* Malicky & Sipahiler, 1993, but differs by the more produced dorsal spine-like process on the terminal hook-formation of the paraproct and the hook is straight, not curved. The lateral profile of the gonopod differently shaped as well as in lateral view the ventromarginal spine-like process is significantly shorter than the ventro-basomesal process.

Description. Male (in alcohol). Dark castanean species. Cephalic and thoracic sclerites dark brown, almost black especially on the dorsum; appendages including legs lighter brown; haustellum and intersclerital membranous teguments whitish. Forewing length 11 mm; wing membrane brown, densely covered with decumbent setae.

Male genitalia. Pointed dorsal spine-like process on the terminal hook-formation of the paraproct very produced, upward directed. The lateral profile of the gonopod differently shaped as well as in lateral view the ventromarginal spine-like process is significantly shorter than the ventro-basomesal process.

Etymology. Coined after the name of locus typicus, a noun in apposition.

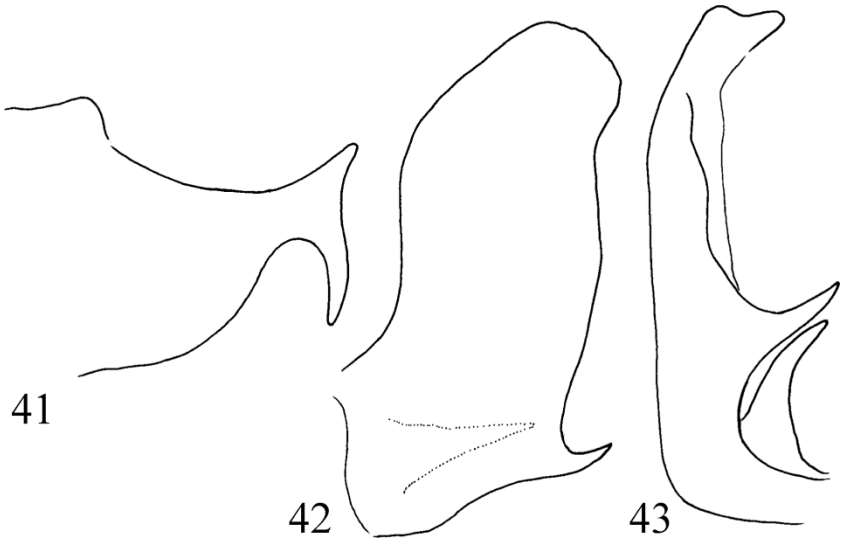
***Notidobia lakmosa* Oláh, sp. nov.**

(Figures 41–43, Map 6)

*Material examined***.** Holotype: **Greece**, Thessaly, Trikala peripheral unit, Lakmos Mts. Chaliki, open torrent and brook N of the village, 1225 m, N39°41.908', E21°11.037', 9.V.2011 leg. J. Kontschán, D. Murányi Szederjesi & Ujvári (1 male, HNHM). Paratypes: same as holotype (7 males, HNHM).

Diagnosis. Most close to *Notidobia vaillanti* sp. nov., but differs by the more pronounced pointed dorsal spine-like process on the terminal hook-formation of the paraproct and the hook is longer, more slender and less curved. The lateral profile of the gonopod differently shaped having the apical region more slender and posterad directed as well as in ventral view the ventro-basomesal spine-like process is small, not long.

Description. Male (in alcohol). Dark castanean species. Cephalic and thoracic sclerites dark brown, almost black especially on the dorsum; appendages including legs lighter brown; haustellum and intersclerital membranous teguments



Figures 41–43. *Notidobia lakmosa* Oláh, sp. nov. Holotype male: 41= paraproct in lateral view; 42 = left gonopod in left lateral view; 43 = left gonopod in ventral view.

whitish. Forewing length 11 mm; wing membrane brown, densely covered with decumbent setae.

Male genitalia. The dorsal spine-like process on the terminal hook-formation of the paraproct pointed pronounced and the hook apical margin directed almost straight ventrad. The lateral profile of the gonopod with posterad directed apical region as well as in lateral view the ventrobasomesal spine-like process is small, the marginal spine-like process is long, upward directed and slender pointed.

Etymology. Coined after the name of locus typicus, a noun in apposition.

***Notidobia melanoptera* Stein, 1862**

(Figurers 44–46, Map 6)

Notidobia melanoptera Stein, 1862:415: „30. *Notidobia melanoptera* m. Piceo nigra, antennis, alis pedibusque fuliginosis. Long. corp. 8½ millim., alar. super. 11 millim. ♂." „Von *N. ciliaris* Linn. (*atrata* Fabr.) unterscheidet sich diese Art hauptsächlich durch die Gröfse und die dunkel gefärbten Beine. Nur diese eine griechische Sericostomide in der K. Sammlung wurde von Dr. Krüper eigesandt."

Notidobia melanoptera Stein, 1862: Klapálek 1903:2–3: „Mehrere ♂ und ♀ Karpenisi (Central Greece!) (Apfelbeck)."

Notidobia melanoptera Stein, 1862: Malicky 1978: „Stein (1863) beschrieb eine *Notidobia melanoptera* aus Griechenland; der genau Fundort ist nicht bekannt. Von Originalmaterial ist nur 1 Weibchen erhalten, das sich im Zoologischen Museum der Humboldt-Universität in Berlin befindet.

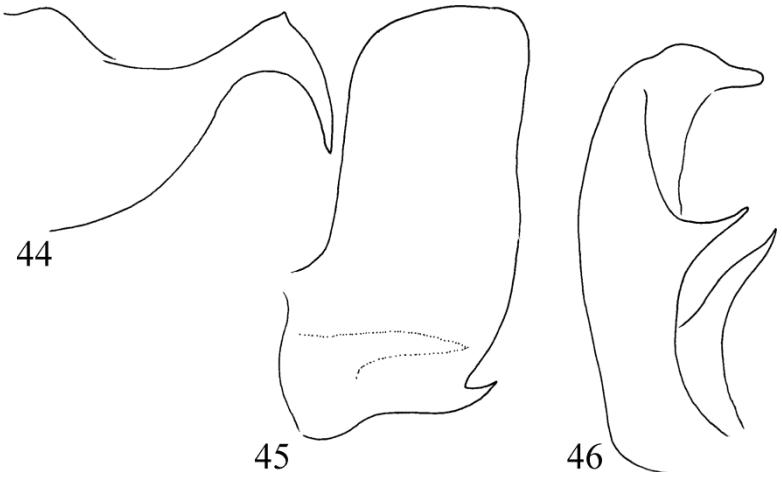
Notidobia melanoptera Stein, 1862: Sipahiler & Malicky 1987:103: „*Notidobia melanoptera* Stein, 1863, die für einen Endemiten Mittelgriechenlands gehalten worden war.

Notidobia melanoptera Stein, 1862: Malicky & Sipahiler 1993:471: „*N. melanoptera* kommt nur in Mittel-Griechenland vor."

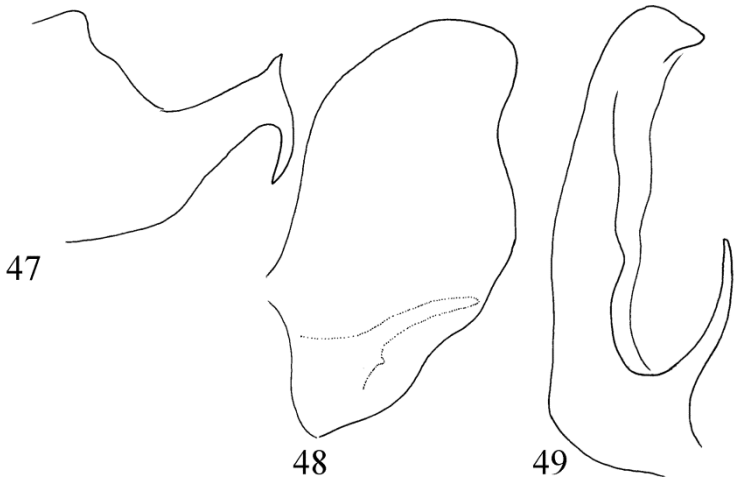
Notidobia melanoptera Stein, 1862: Malicky 2005: 131: „Daten: „Greece", Krüper, Museum Berlin, 1♀ (Holotypus);"

Material examined. **Greece**, Iti GR56 zw. Kastanea u. Katafigion, N38°50', E22°17', 1400 m, 8.VI.1987, leg. H. Malicky (10 males, 1 female; OPC).

New diagnosis. According to the lateral profile of the gonopod and the short dorsal spine-like process on the terminal hook-formation of the paraproct this species is more close to *Notidobia salihli* Malicky & Sipahiler, 1993, but distinctly differs by the long and slender hook formation of the paraproct, short and robust as well as rounded apicad at *N. salihli* as well as the mesad shifted marginal spine like process pointed and slender, not robust and blunt.



Figures 44–46. *Notidobia melanoptera* Stein, 1862. Male: 44 = paraproct in lateral view; 45 = left gonopod in left lateral view; 46 = left gonopod in ventral view.



Figures 47–49. *Notidobia nekibe* Klapálek, 1903. Male: 47 = paraproct in lateral view; 48 = left gonopod in left lateral view; 49 = left gonopod in ventral view.

Notidobia nekibe Klapálek, 1903

(Figures 47–49, Map 6)

Notidobia nekibe Klapálek, 1903:3–4: **Greece**, „Schwarz, die Hinterschienen und Hintertarsi hell gelbbraun, noch heller als bei *ciliaris*, seidenglänzend. „ „1 ♂ Jannina (Ioanina!) (Apfelbeck).”

Material examined. **Albania**, Gjirokastër county, Tepelenë municipality, Kurvelesh, Gurrit Stream E of Progonat 1025m, N40°12.625’, E19°58.108’ leg. P. Juhász, T. Kovács, D. Murányi, 29.VI.2018 (3 male, 1 female; OPC). Korçë county, Kolonjë municipality, Leskovik, roadside spring W of the town, 575 m, N40.14503°, E20.57265°, 30.IV.2021, leg. T. Kovács, D. Murányi, P. Olajos (3 males, OPC). Kolonjë district, Grammos Mts, Rehovë, forest brook E of the village, N40°20.111’, E20° 43.467’, 1445 m, 11.05.2014, T. Kovács, D. Murányi (4 males, OPC). Kolonjë district, Grammos Mts, Rehovë, spring at the Rehovë Monastir, N40°20.019’, E20°42.968’, 1265 m, 11.05.2014, T. Kovács, D. Murányi (3 males, 1 female; OPC). Kolonjë district, Barmash, large spring and its outlet in tall rush stands, NE of the village, N40°

17.034', E20°37.814', 955 m, 11.V.2014, T. Kovács, D. Murányi (12 males, 3 females; OPC). Erseke County, Grammos Mts, 2.8 km E of Starje, valley of Alikolare stream NW of Mt. Qukapeci, 1864 m, N40.361280°, E20.754580° 19.VII.2006, leg. Z. Barina, T. Pifkó & D. Pifkó (5 males, HNHM). Periferi Berat, Dardhë, beneath N slope of Çuka Partizan, 810 m, N40°26'45.0234", E20° 4'34.608", 9.IV.2006, leg. Z. Barina, T. Pifkó & D. Pifkó (1 male, HNHM). Skrapar County, Backe, spring section of River Mrbreti, under Mt. Faqekuq, 1969m, 5.VII.2006, leg. Z. Barina, T. Pifkó & D. Pifkó (1 male, 2 females, HNHM). Skrapa County, Backe, stream under the pass between Mt. Frengu and Mt. Faqekuq, 1913 m, 4.VII.2005, leg. Z. Barina, T. Pifkó & D. Pifkó (5 males, 2 females, HNHM). Skrapar county, Ceremica stream W of the village, 1534m, 6.VII.2006, leg. Z. Barina, T. Pifkó & D. Pifkó (2 males, 1 female, HNHM). Skrapar county, Ostrovicë Mts, Krojmbret spring NE of Backë, between the Frengu and Faqekuq Peaks, N40°31.753', E20° 25.152', 1965m, 21.VIII.2006, leg. Z. Fehér, A. Hunyadi, T. Huszár & D. Murányi (1 male, HNHM). Skrapar County, under the Mt. Ostrovica, 1960m, 6.VII.2006, leg. Z. Barina, T. Pifkó & D. Pifkó (5 males, 1 female, HNHM). Vlorë county, Cikë Mts, spring N of the Llogara Pass, N40°12'11.4", E19°35'15.5", 979m, 11.V.2006, leg. L. DányiI, J. Kontschán & D. Murányi (3 males, HNHM). Skrapar district, Ostrovicë Mts, Backë, spring with Juncus, N (above) the village, N40°31'13.2", E20°24'31.0", 1610 m, 29.V.2013, leg. P. Juhász, T. Kovács, G. Magos, G. Puskás, (19 males, 4 females; OPC). Diber district, Deje Mts. Sidestream of the Varoshit stream along the road to Lure area, 1215 m, N41°39.824', E20°11.720', 18.V 2010 leg. Z. Barina, Fehér, D. Murányi D. Pifkó & Ujvari (2 males, 1 female, HNHM). Mat district, Deje Mts. Hurdhe Muhur, open brook E of the village, 895 m, N39°41.908', E21°11.037', 20.V.2010 leg. Z. Barina & D. Pifkó (6 males, 4 females, HNHM). Bulqizë district, Çermenikë Mts, spring with Juncus, 2 km W of Bizë, N41°20'22.5", E20°08'04.5", 1390 m, 27.V.2013, leg. P. Juhász, T. Kovács, G. Magos, G. Puskás, (6 males, 9 females; OPC). Pukë District, rocky stream above Blinisht, N42°4' 58.44", E19°57'48.24", 1010m, 13.V.2014 leg. Z. Barina, D.Pifkó & G.Puskás (1 male, 4 females; OPC). Elbasan district Shushice**.** Burimi te Byshekut, 175 m asl. (limestone rocks stream) N41.1005°, E20.1249°, 17.04.2014 leg. Fehér, Németh, Mizsei (1 male, 1 female; OPC). Albania: Mirditë, Nënshejt village. N41°51.848', E20° 07.088', 1175 m, 4.VI.2013, leg. H. Ibrahimi, (2 males, 1 female; DBFMNSUP). Tepelenë, Uji i Ftoftë. N40°15.011', E20°03.548', 165 m. 2.VI. 2013, leg. H. Ibrahimi. (3 males. DBFM NSUP). Skrapar, Baçkë village. N40°31.314', E20° 24.833', 1750 m. 1.VI.2013, leg. H. Ibrahimi (1 male, 1 female; DBFMNSUP). Mt. Tomor, near Ujanik, N40.6148°, E020.1949°, 1476 m, 15.VII. 2018, leg. S. Beshkov & A. Nahimic (3 males, 1 female; OPC). Sarandë District, Vrinë, shore of river Lumi i Pavllës, 10m, N39.71786 E20.02033, leg. Z. Barina, D. Pifkó & G. Puskás 08.V.2014 (2 males, 1 female; OPC). **Greece**, Ioannina county, E of Metsovo, „Metzoboy 1987" spring, 39°45' 16.6", 21°08'56.4" 1027m, 13.V. 2006, leg. L. Dányi, J. Kontschán & D. Murányi (2 males, HNHM). Ioannina county, Kalpaki, Vellas Monasteri, karstic spring, 39°51'57.0", 20°37'26.1", 419m, 12.V.2006, leg. L. Dányi, J. Kontschán & D. Murányi (2 males, 1 female, HNHM). **West Macedonia**, Kozani peripheral unit, Neapoli, Aliakmonas River NE of the city, N40°19.976', E21°24.678', 555 m, 08.05.2014, T. Kovács, D. Murányi (8 males, 1 female; OPC). Grevena peripheral unit, Zakas, spring by the Venetikos River NE of the village, N40°02.285', E21°17.323', 690 m, 09.05.2014, T. Kovács, D. Murányi (4 males, 1 female; OPC). **Kosovo**, Reč. Radavac, 700 m, 17. V.1971, leg. Papp & Horvátovich **(**Pejë/Peč, spring area of Drini i Bardhë River in Radavc) (1 male, OPC). **Macedonia**, Polog region, Bistra Mts. Galicnik, stream at the village, 1435 m, N41°35.615', E20°39.965', 1. VII. 2010, leg. D. Pifkó Z. & Barina (1 males, HNHM). Polog region, Šar Planina, Bozovce, open brook W of the village, N42°02.759', E20° 47.776', 1545 m, 24. VI.2014, P. Juhász, T. Kovács, D. Murányi (2 males, OPC). Vardar region, Kožuf Mts, open brook in bushy alpine grassland towards Ski Kožuf, N41°11.968', E22°13.550', 1610 m, 25.VI. 2014, P. Juhász, T. Kovács, D. Murányi (1 male, OPC).

Remarks. *Notidobia nekibe* Klapálek, 1903, the nominate species of the complex is a very abundant inhabitant of spring areas, spring streams, small streams in Kosovo, Albania, Macedonia and Greece. According to the commonality and locality principles the possible ancestral species of the complex *Notidobia nekibe* is split from *Notidobia ciliaris* by developing the unique character state of the paraproctal head of the heavily sclerotized downward curving hook formation an unique genetical integration in the entire Sericostomatidae family. This specific character state of the paraproctal terminalia is combined with a single pair of ventromarginal spine-like process. The ventral mesobasal spine-like process lacking at its ancestral species *Notidobia ciliaris*, but present at all the other species of the complex even at *N. sagarrai* integrated independently very far, is also absent at *N. nekibe.*

Examining one population from Kosovo, 24 populations from Albania, three populations from Macedonia and four populations from Greece, we have recorded the paraproctal hook formation rather stable, but the ventromarginal spine-like process exhibited significant unstability. In lateral profile it is characterized with ventrobasal variously vestigial additional spine. It may require a special study covering more populations with more specimens to establish the real nature of any undergoing speciation processes represented by this ventrobasal additional spine.

Notidobia nogradorum Oláh, 2010

(Figures 50–52, Map 6)

Notidobia nogradorum Oláh, 2010:114–115. „This new species belongs to the homegeneous group of species: *Notidobia melanoptera* Stein, 1863 (Greece), *N. nekibe* Klapálek, 1903 (Greece), *N. sagarrai* Navas, 1917 (mistake: Sardinia, valid: Spain), *N. bizensis* Malicky et Sipahiler, 1993 (Albania) and *N. salihli* Malicky et Sipahiler, 1993 (Turkey). It is closest to *N. bizensis*, but differs by having (1) more robust and curve-shaped groove pattern on the IXth dorsum, not slender and straight; (2) the heavily sclerotized pair of paraproctal processes with extremely enlarged dorsal and downcurving hook-formation, not with small hook; (3) the two spine-shaped processes on the basomesal surface of the gonopod with separated individual bases, not with long joint basal plate." „Type material – Holotype, male, HNHM. Albania, Korcë district, Zvirine, Trifti Spring N of village, 835 m, N40°47.644', E20°44.128, 24.V.2007, leg. Z. Barina, Cs. Németh & D. Pifkó (1 male)."

Notidobia nogradorum Oláh, 2010: Malicky 2018:45. „I have directly compared the holotype of *Notidobia nogradorum* with the holotype of *N. bizensis* and found no differences in all relevant characters. Both species have been described from Albania. *Notidobia nogradorum* Oláh, 2010 = *Notidobia bizensis* Malicky & Sipahiler 1993. nov. syn."

Material examined. Holotype: **Albania**, Korcë district, Zvirine, Trifti Spring N of village, 835 m, N40°47.644', E20°44.128, 24.V.2007, leg. Z. Barina, Cs. Németh & D. Pifkó (1 male).

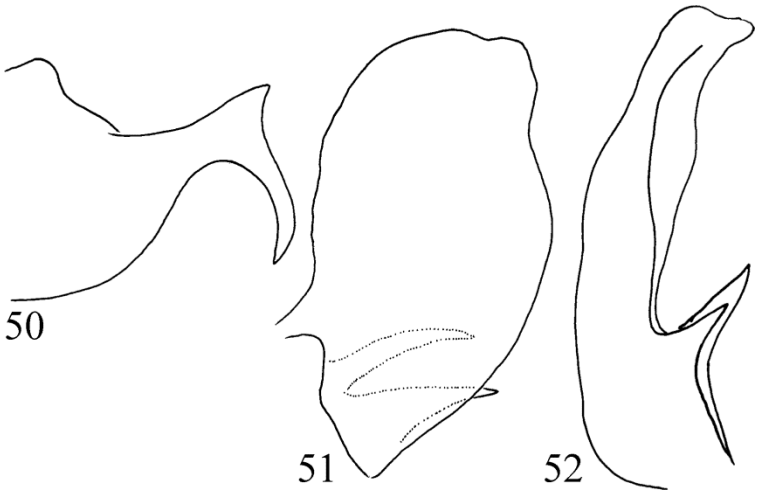
New diagnosis. Most close to *Notidobia bizensis* Malicky & Sipahiler, 1993, but differs by the less pointed and posterad, not upward directed dorsal spine-like process on the terminal hook-formation of the paraproct and the hook is longer and slender. The lateral profile of the gonopod differently shaped as well as in lateral view the ventro-basomesal and ventromarginal spine-like processes are deeply split, not separated only on the apical half having a long fused basal region forming together a common basement.

Notidobia sagarrai (Navas, 1917)

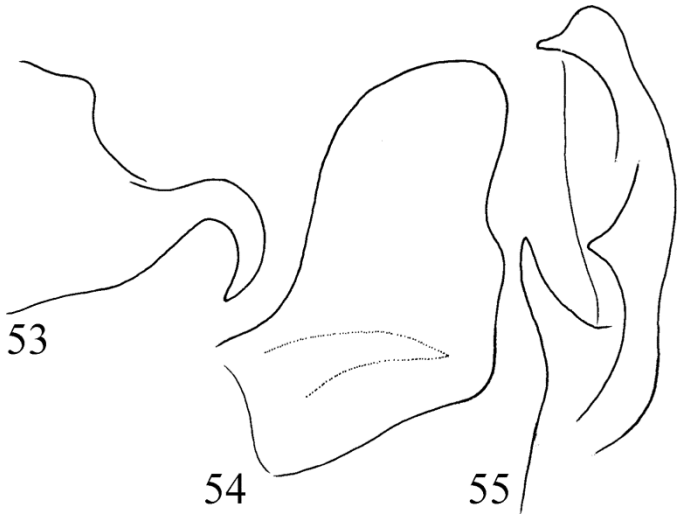
(Figures 53–55)

Cunia sagarrai Navas, 1917:14–16: „Patria. Cataluña: Santa Susana, Montseny, 26 de Abril de 1916. (Col. m.)."

Remarks. We have not got any specimen for a detailed genital study however, the pictures of Schmid (1949) and Malicky (1983) make possible to compare them to other species of the complex with downward directed hook-like paraproct terminalia. This is an interesting species diverged independently in Spain far from the relatives, the other members of *Notidobia nekibe* complex so diverse and populating the Balkan South of Kosovo and western coastal territories of Turkey.



Figures 50–52. *Notidobia nogradorum* Oláh, 2010. Male: 50 = paraproct in lateral view; 51= left gonopod in left lateral view; 52 = left gonopod in ventral view.



Figures 53–55. *Notidobia sagarrai* (Navas, 1917). Male: 53 = paraproct in lateral view; 54= left gonopod in left lateral view; 55 = left gonopod in ventral view.

Its genital structure suggests a diversification from the same genetical background and realised by the random rearrangement and combination of the same components of the ancient species of the genus *Notidobia ciliaris*. However, the genetical combination of components has produced the hook formation on the paraproctal terminal without any dorsal spine-like process present at all other members of the *Notidobia nekibe* species complex.

Notidobia salihli Malicky & Sipahiler, 1993

(Figures 56–58, Map 6)

Notidobia salihli Malicky & Sipahiler, 1993:471–472: „Holotypus ♂: Turkey, 4 km W Ürkmez, 38°04'N 26°56'E, 0 m, 19.V.1992, leg Malicky."

Material examined. Paratypes: **Turkey**, 19 km S Salihli, N38°23', E28°05', 1000m, 22.V.1992, leg. H. Malicky & F. Sipahiler (7 males, 2 females, OPC).

New diagnosis. According to the lateral profile of the paraproct most close to *Notidobia kerkina* sp. nov., but differs by the periphallic organ of gonopod having rectangular shape, not S-form shaped as well as by the less pronounced pointed dorsal spine-like process on the terminal hook-formation of the paraproct and the hook is distinctly rounded apicad.

Notidobia vaillanti Oláh, Vinçon & Ibrahimi, sp. nov.

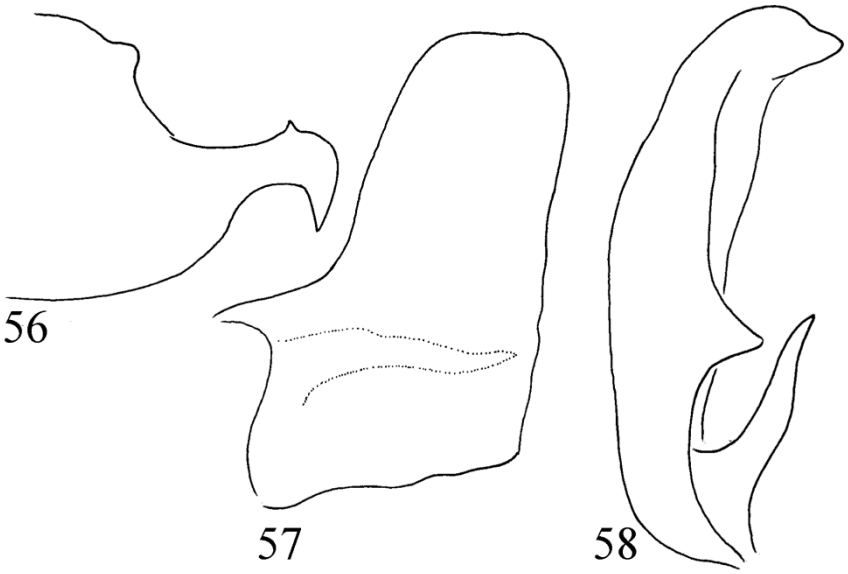
(Figures 59–61, Map 6)

Notidobia salihli Malicky & Sipahiler, 1993: Oláh & Kovács 2015:130. Misidentification.

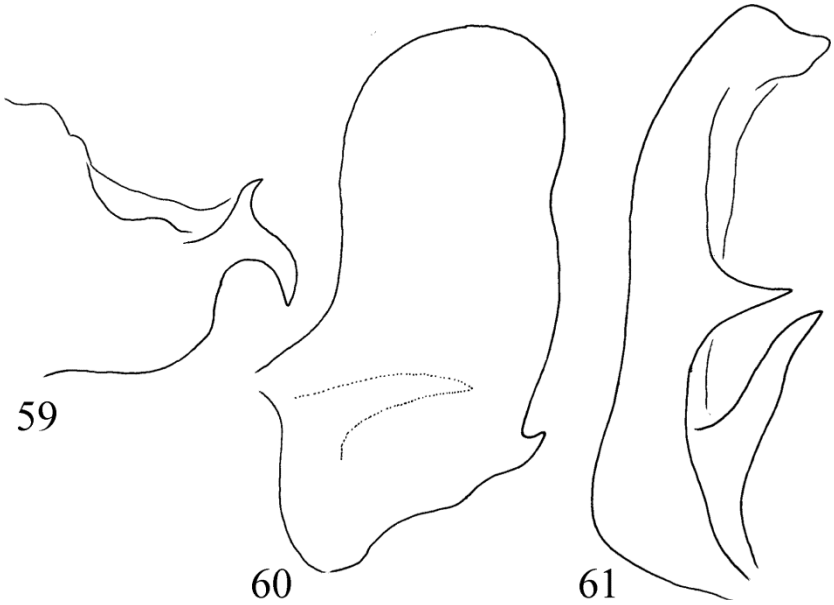
Material examined. Holotype: **Macedonia**, Polog region, Šar Planina, Bozovce, open stream, brooks and seeps W of the village, N42°03.147', E20°46.920', 1880 m, 24.VI.2014, P. Juhász, T. Kovács, D. Murányi (1 male, OPC). Paratypes: same as holotype (5 male, 1 female, OPC). **Kosovo**, Midstream area of Lepenc River, Brod village, Sharr Mountains. N42.2694°, E21.1261°, 702 m, 18.VI.2013, leg. H. Ibrahimi (2 males, DBFMNSUP). Midstream area of Lepenc River, Brod village, Sharr Mountains. N42.2694°, E21.1261°, 702 m, 19.VI.2013, leg. H. Ibrahimi (4 males, 1 female, OPC). Upstream area of Lepenc River, Sharr Mountains. N42.1813°, E20.9781°, 1465 m, 05.VI.2010, leg. H. Ibrahimi (1 male, 1 female; DBFMNSUP).

Diagnosis. Most close to *Notidobia lakmosa* sp. nov., but differs by the posterad curving pointed dorsal spine-like process on the terminal hook-formation of the paraproct and the hook is shorter, more robust and more curved. The lateral profile of the gonopod differently shaped having the apical region rounded withoud pronounced posterad direction as well as in ventral view the ventro-basomesal spine-like process is longer.

Description. Male (in alcohol). Dark castanean species. Cephalic and thoracic sclerites dark brown, almost black especially on the dorsum; appendages including legs lighter brown; haustellum and intersclerital membranous teguments whitish. Forewing length 11 mm; wing membrane brown, densely covered with decumbent setae.



Figures 56–58. *Notidobia salihli* Malicky & Sipahiler, 1993. Male: 56 = paraproct in lateral view; 57= left gonopod in left lateral view; 58 = left gonopod in ventral view.



Figures 59–61. *Notidobia vaillanti* Oláh, Vinçon & Ibrahimi, sp. nov. Holotype male: 59 = paraproct in lateral view; 60 = left gonopod in left lateral view; 61= left gonopod in ventral view.

Male genitalia. The dorsal spine-like process on the terminal hook-formation of the paraproct pointed pronounced and turning posterad the hook formation robust and curving. The lateral profile of the gonopod with rounded apical region as broad as the basal region; in lateral view the ventro-basomesal spine-like process is long, the marginal spine-like process is pointed, laterad directed.

Etymology. We have dedicated this remarkable member of the *Notidobia nekibe* species complex recently collected in Macedonia and Kosovo to our colleague François Vaillant whose important studies on the European species of the genus *Wormaldia* contributed significantly to our revisory works on *Wormaldia* both in the Balkan mountain ranges and in western Europe.

Oecismus mucidus McLachlan, 1876

Material examined. **Albania**, Korçë Region, Dardha, 1276m, N40°31’34”, E020°49’33”, 26.6.2017 meadow near stream with *Salix, Fagus* forest and hill with *Astragalus*, lamps, light traps leg. S. Beshkov & A. Nahirnic (1 male, OPC).

Sericostoma flavicorne Schneider, 1845

Material examined. **Albania**, Delvina Region, between Bistrica Village and Syri i Kalter, 127 m, N39°55’53”, E020°09’13” 13.V.2017, leg. S. Beshkov & A. Nahirnic (4 males, 1 female; OPC).

Sericostoma schneideri Kolenati, 1848

Material examined. **Bulgaria**, W Stara Planina Mts. Gushovski Monastir above Tchiprovtzi Town, N43.3661°, E22.8402°, 808 m, 26.VI. 2021, leg. S. Beshkov & A. Nahirnic-Beshkova (1 male, OPC). W. Stara Planina Mts, Zarezan Tcheshma above Tchuprene on Tchuprenska Reka river, 674m, N43.4874, E22.6154°, 24.VI. 2021°, leg.S. Beshkov & A. Nahirnić-Beshkova (40 males, 10 females; OPC).

Sericostoma turbatum McLachlan, 1876

Material examined. **Bulgaria**, Kraljevo, above Kamenica Village, Stolovi Mt. Veliki čukar, N43° 36’07”, E020°41’08”, 688 m, 4.VII.2021, leg. S. Beshkov & A. Nahirnic-Beshkova (1 male, 2 females; OPC).

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