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New records of Trichoptera in the Balkan Peninsula and Romania, with description of new Rhyacophila sibling species by speciation traits

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Abstract – Processing of light collected Balkan material supplemented with sweep-netted *Rhyacophila* Pictet, 1834 from Bosnia-Herzegovina and Romania has resulted in 40 new species records with the description of three new species: *Rhyacophila olahorum* sp. n., *R. neretva* sp. n. and *R. nurga* sp. n. from the *Rhyacophila orghidani* and *Rhyacophila pascoei* new species complexes. With 18 figures.

Key words – Caddisflies, species complex, new species, Albania, Bosnia and Hercegovina, Bulgaria, Greece, Montenegro, Serbia

INTRODUCTION

This paper with new species records and new species descriptions is based primarily on caddisfly specimens collected at light. Locality selection and installation of light collecting apparatus were realised for collecting Lepidoptera. The collecting sites are frequently far from flowing waters and especially far from crenon-hypocrenon habitats. Therefore, mostly the most common long range flyer *Limnephilus* Leach, 1815, Stenophilacini and *Hydropsyche* Pictet, 1834 species dominated the collected caddisfly material. These specimens are not included in the present paper. A single unknown male *Rhyacophila* Pictet, 1834 specimen collected in Montenegro supplemented with sweep netted *Rhyacophila* specimens form Bosnia-Herzegovina and Romania initiated a systematic survey of two *Rhyacophila* sibling species complexes and resulted in the description of three new *Rhyacophila* species with the establishment of two new species complexes: (1) *Rhyacophila orghidani* new species complex; (2) *Rhyacophila pascoei* new species complex.

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MATERIAL

Most of the materials were collected at light by the second author during his systematic field work programme carried out in various mountain ranges of the Balkan Peninsula. Additional *Rhyacophila* material was collected by sweep-netting along small spring streams and streams in the Apuseni Mountains, Romania.

Abbreviations of depositories – NMBA = National Museum of Natural History, Bulgarian Academy of Sciences, OPC = Oláh Private Collection under protection of Hungarian Natural History Museum.

FAUNISTIC AND TAXONOMIC PART

Philopotamidae

Wormaldia charalambi Malicky, 1980

Material examined – **Bulgaria**: S. Pirin, Alibotush Mts, Gradishte between Nova Lovcha and Paril villages, 750 m, N 41° 26' 00", E 23° 41' 52", 23.VI.2014, leg. S. Beshkov & M. Beshkova (1 male, NMBA).

Wormaldia homora Oláh, 2014

Material examined – **Bulgaria**: Central Stara Planina Mts, Tchamdzha Reserve, near Hristo Danovo Village, 570 m, N 42° 43' 59", E 24° 35' 37", 31.VII.2014, leg. S. Beshkov (1 male, NMBA); SW Bulgaria, Paril Pass between Alibotush (= Slavyanka) Mts and S Pirin Mts, between Paril and Nova Loccha villages, 756 m, N 41° 25' 57", E 23° 42' 02", 17.VI.2013, at lamps and light traps, leg. S. Beshkov & B. Zlatkov (1 male, NMBA).

Wormaldia subnigra McLachlan, 1865

Material examined – **Bulgaria**: Eastern Rhodopi, Byala Reka River, Zhultichalskoto dere near Meden Buk Village, Ivaylovgrad District, 121 m, N 41° 22' 48", E 26° 01' 40", 25.VII.2012, at lamps, light traps, leg. S. Beshkov & M. Beshkova (2 males, OPC).

Notes – Doubtful identification, the two specimens differ, comparative examination is required.

Polycentropodidae

Polycentropus excisus Klapálek, 1894

Material examined – **Serbia**: E Serbia, Pirot Region, near Crni Vrh top, 1046 m N 43° 10' 51"; E 22° 38' 52", 15.VI.2015, light, leg. S. Beshkov & A. Nahirnic (1 male, OPC).

Psychomyiidae

Tinodes polifurculatus Botosaneanu, 1956

Material examined – **Bulgaria**: Predbalkan, Shoumen Muflonite Hunting Chalet near the dam of Ticha Reservoir, Veliki Preslav district, 259 m, N 43.07969°, E 26.81772°, 17.VIII.2012, at lamps, light traps, leg. S. Beshkov & M. Beshkova (2 males, OPC); Bosna Mts, Dudenovo, Dudenska Reka, between Vizitza and Novo Panicharevo, 249 m, N 42° 10' 25", E 27° 34' 07", 26.VII.2012, at light, leg. S. Beshkov & M. Beshkova (1 male, NMBA).

Tinodes popovi Kumanski, 1975

Material examined – **Bulgaria**: Kotlenska Planina, between Ticha village and Kotel town, 401 m, N 42° 56' 32", E 26° 26' 21", 15.VIII.2012, at lamps, light traps, leg. S. Beshkov & M. Beshkova (2 males, 2 females, NMBA, 1 male, 1 female, OPC); Predbalkan, Shoumen Muflonite Hunting Chalet near dam of Ticha Reservoir, Veliki Preslav district, 259 m, N 43.07969°, E 26.81772°, 17.VIII.2012, at lamps, light traps, leg. S. Beshkov & M. Beshkova (1 male, OPC); Eastern Rodopi, near Egrek village, 514 m, N 41° 19' 17", E 25° 38' 17", 2.V.2013, at lights, leg. S. Beshkov & B. Beshkovi (1 male, 3 females, OPC).

Hydropsychidae

Hydropsyche bulbifera McLachlan, 1878

Material examined – **Bulgaria**: Eastern Rodopi, near Strazhetz, above the crossroad Gugutka-Krumovgrad, 575 m, N 41° 21' 11", E 25° 50' 35", 24.VII.2012, at lights, leg. S. Beshkov & M. Beshkova (1 male, OPC).

Hydropsyche emarginata Navas, 1923

Material examined – **Bulgaria**: Predbalkan, Shoumen Muflonite Hunting Chalet near dam of Ticha Reservoir, Veliki Preslav district, 259 m, N 43.07969°, E 26.81772°, 17.VIII.2012, at lamps, light traps, leg. S. Beshkov & M. Beshkova (1 male, OPC). Eastern Rodopi, near Strazhetz, above the crossroad Gugutka-Krumovgrad, 575m, N 41° 21' 11", E 25° 50' 35", 24.VII.2012, at lights, leg. S. Beshkov & M. Beshkova (1 male, OPC).

Hydropsyche modesta Navas, 1925

Material examined – **Bulgaria**: Predbalkan, Shoumen Muflonite Hunting Chalet near the dam of Ticha Reservoir, Veliki Preslav district, 259 m, N 43.07969°, E 26.81772°, 17.VIII.2012, at lamps, light traps, leg. S. Beshkov & M.

Beshkova (2 males, OPC); Eastern Rodopi, near Strazhetz, above the crossroad Gugutka-Krumovgrad, 575 m, N 41° 21' 11", E 25° 50' 35", 24.VII.2012, at lights, leg. S. Beshkov & M. Beshkova (2 males, OPC).

Hydropsyche valkanovi Kumanski, 191974

Material examined – **Bulgaria**: Eastern Rodopi, between Bosilitza and Besnurka village, Komuniga-Chernoochene District, 566 m, N 41° 45' 46", E 25° 14' 11", 21.VII.2012, at lights, leg. S. Beshkov & M. Beshkova (4 males, OPC); Strandza–Black Sea Coast, Ropotamo Hunting Farm, near Velyov Vir Reserve, 7 m, N 42° 18' 06", E 27° 42' 22", 30.VII.2012, at lights, leg. S. Beshkov & M. Beshkova (1 male, OPC); Eastern Rodopi, near Strazhetz, above the crossroad Gugutka-Krumovgrad, 575 m, N 41° 21' 11", E 25° 50' 35", 24.VII.2012, at lights, leg. S. Beshkov & M. Beshkova (7 males, OPC).

Rhyacophilidae

Rhyacophila armeniaca Guérin-Ménéville, 1843

Material examined – **Bulgaria**: Central Stara Planina, Central Balkan national Park, below the parking place of Pleven Chalet above Apriltzi Village, 865 m, N 42° 45' 34", E 24° 54' 29", 12.VIII.2012, at lights, leg. S. Beshkov & M. Beshkova (3 males, NMBA, 2 males, OPC).

Rhyacophila fischeri Botosaneanu, 1957

Material examined – **Bulgaria**: Eastern Rodopi, near Egrek village, 514 m, N 41° 19' 17", E 25° 38' 17", 2.V.2013, at lights, leg. S. Beshkov & B. Beshkovi (1 male, 3 associated females, OPC).

Rhyacophila joosti Mey, 1979

Material examined – **Bulgaria**: Central Balkan, Teteven distr. between Divchovoto and Kardela, above Chern Vit Village, 821 m, N 42° 49' 06", E 24° 14' 51", 11.VIII.2012, at lights, leg. S. Beshkov & M. Beshkova (2 males, NMBA, 1 male, OPC).

Rhyacophila kownackiana Szczesny, 1970

Material examined – **Bulgaria**: Central Balkan, Teteven distr. between Divchovoto and Kardela, above Chern Vit Village, 821 m, N 42° 49' 06", E 24° 14' 51", 11.VIII.2012, at lights, leg. S. Beshkov & M. Beshkova (1 male, 2 females NMBA, 1 male, 2 females, OPC).

Rhyacophila orghidani new species complex

With the discovery of *Rhyacophila olahorum* sp. n., this new species complex comprises actually of a sibling pair of contemporary diverged species in the Munții Apuseni: *Rhyacophila olahorum* Oláh, sp. n. and *R. orghidani* Botosaneanu, 1952. They belong into the *R. tristis* species group of the *R. invaria* branch. It is the most specialised lineage in the group characterised by the highly separated dorsal and ventral parts of the segment X as well as the paraproct (U-shaped apical band) forming a concavity deeply retracted in segment IX. Epiproct is indiscernible, tergal band is short, almost reduced.

There are consistent, although subtle divergences in the shape of the periphallic organ between the sibling species. Apical apex of the dorsal part of segment X is more excised in *R. olahorum* sp. n. Ventral lobe of harpagones is tapering at *R. orghidani*, parallel-sided and obliquely truncate at *R. olahorum* sp. n. However, these periphallic organs might exhibit a certain range of intrapopulation individual variability.

Subtle, but stable divergence evolved in the sexual selection processes on the tip of the heavily sclerotised dorsal process of the phallotheca. The trifid tip of the dorsal process at *R. orghidani* is characterised with an elongate very pointed strong mesal pike. The quadrifid tip of the dorsal process of the phallotheca at *R. olahorum* is diverged by the split of the mesal pike into a bifid mesal structure. This divergence of the male speciation trait could be accompanied by the coevolution of the female vaginal sclerite complex. The posterior process of this complex has been diverged into a truncate apical margin in *R. olahorum* and into a bilobed apical margin in *R. orghidani*.

Probably this divergence evolved in isolation. But today the two sibling species live in close contacts in intermingled populations forming presumably complex cline and contact network in the Munții Apuseni. The distribution of our recent collecting data suggests that the contemporary divergence is already reinforced mostly in the reproductive character displacement processes. The primary allopatry of isolation is not studied, however, if we compare our collection details we find some preference of *R. olahorum* to populate higher elevations as compared to *R. orghidani*.

Rhyacophila olahorum Oláh, sp. n.
(Figs 1–6)

Rhyacophila orghidani Botosaneanu, 1952: Schmid (1970: 66): the new drawing was prepared not from the holotype of *R. orghidani*, but from the here distinguished and described closely related sibling, *R. olahorum* sp. n. as detectable from the lateral view of the harpago. Misidentification.

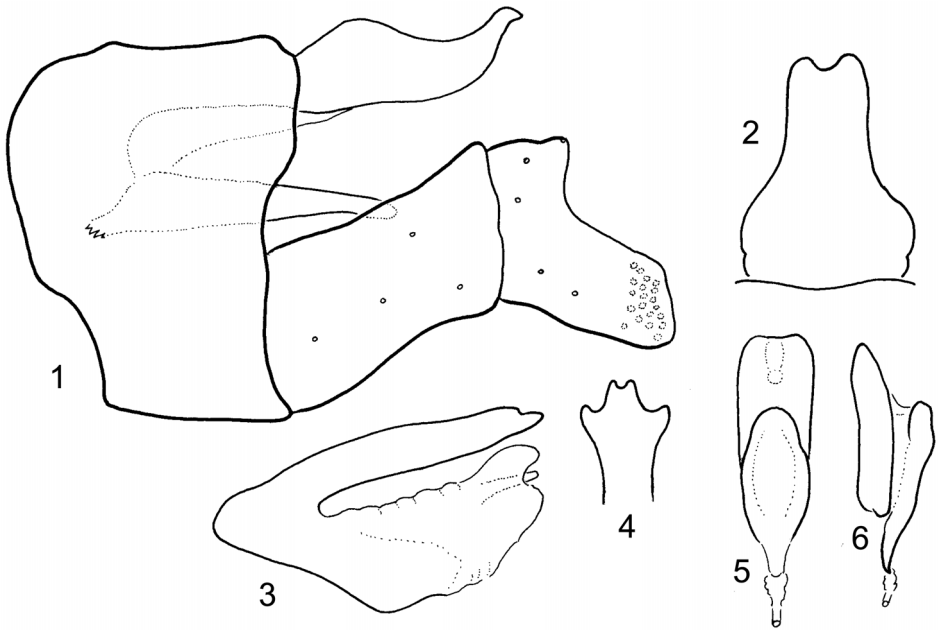
Rhyacophila orghidani Botosaneanu, 1952: Malicky (1983: 6, 2004: 7): Reproducing the erroneous drawing of Schmid. Misidentification.

Diagnosis – In dorsal profile of segment X the apical excision is deep and wide, not shallow and narrow. Ventral lobe of harpago parallel-sided with obliquely truncate apex, not gradually tapering. Apex of the dorsal process of the phallotheca quadrifid, not trifid. Apical margin of the posterior process of the vaginal sclerite complex truncate, not bifid.

Description – Male (in alcohol). Medium-sized, dark brown with some bright roseate reflection, almost black having dark wing membrane marbled in brown. Maxillary palp formula II-I-IV-V-III. Forewing length 11 mm.

Male genitalia. Dorsal profile of the apical margin of segment X with wide mesal excision delimited by lateral lobes. Ventral lobe of harpago parallel-sided with obliquely truncate apex dorsoventrad. Dorsoventral profile of heavily sclerotized head of dorsal process of phallotheca quadrifid; mesal arm subdivided. Female vaginal sclerite complex with truncate posterior margin.

Material examined – Holotype: **Romania**, Munţii Apuseni, Munţii Gilăului, Staţiunea Muntele Băişorii, spring stream of Vadului, N 46° 31.954', E 23° 16.852', 1552 m, 26.V.2013, singled, leg. J. Oláh, E. Bajka, Cs. Balogh & G. Borics (male, OPC). Allotype: same as holotype (female, OPC). Paratypes: Romania, Munţii



Figs 1–6. *Rhyacophila olahorum* Oláh, sp. n., 1 = male genitalia in left lateral view, 2 = segment X in dorsal view, 3 = phallic organ in lateral view, 4 = dorsal process on phallotheca in ventral view, 5 = vaginal sclerite complex in ventral view, 6 = vaginal sclerite complex in lateral view

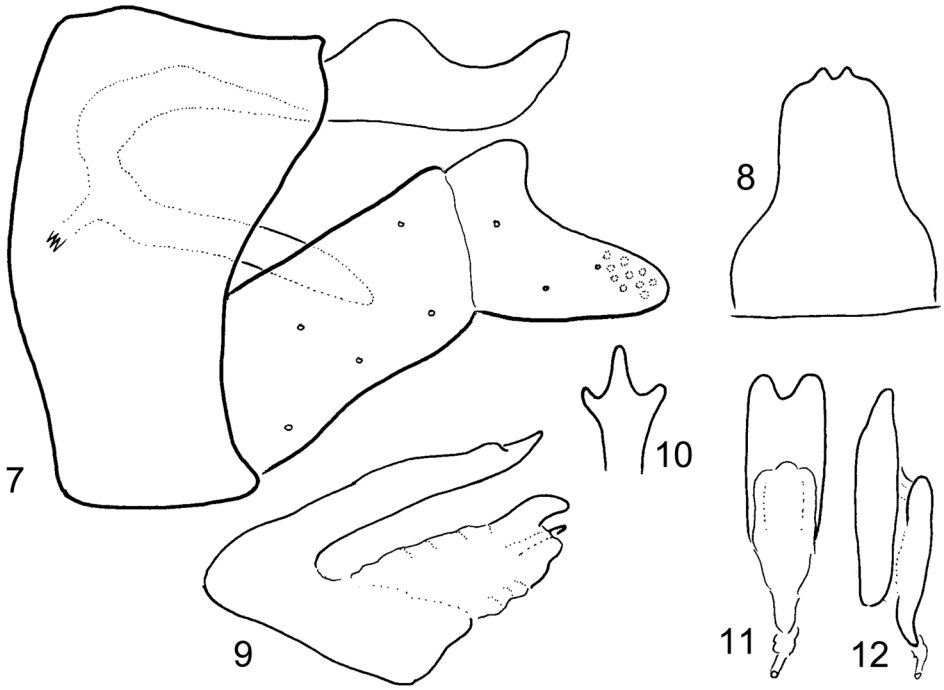
Apuseni, Someşul Cald Gorge, 1143 m, 5–15.VI.1999, leg. L. Újvárosi (8 males, 8 females, OPC); Munții Apuseni, Cetatea Radusei, 14.VI.1999, leg. L. Újvárosi (1 male, OPC); Munții Apuseni, Someşul Cald Gorge, 1143 m, 10.VI.2007, leg. M. Bálint (1 male, OPC). Munții Apuseni, Munții Gilăului, Stațiunea Muntele Băişorii, three-branched stream, N 46° 30.701', E 23° 16.279', 1620 m, 19.VI.2013, singled, leg. J. Oláh, Cs. Balogh & S. Fekete (1 male, OPC); Munții Apuseni, Munții Gilăului, Muntele Mare, spring stream area of Valea Mare, 1826 m, 19.VI.2013, singled, leg. J. Oláh, Cs. Balogh & S. Fekete (1 male, OPC). Munții Apuseni, Masivul Vlădeasa, Stâna de Vale, Pastravariei stream, N 46° 41.676', E 22° 38.027', 1277 m, 6.VI.2015, leg. M. Kiss, J. Oláh & L. Szél (12 males, 4 females, OPC); Munții Apuseni, Masivul Vlădeasa, Stâna de Vale, small stream, crossing road to Culmea Baia Popii, N 46° 40.452', E 22° 38.045', 1335 m, 6.VI.2015, leg. M. Kiss, J. Oláh & L. Szél (3 males, OPC); Munții Apuseni, Masivul Vlădeasa, Stâna de Vale, upper section of Jád stream, N 46° 41.5', E 22° 36.725', 1135 m, 5.VI.2015, leg. M. Kiss, J. Oláh & L. Szél (3 males, OPC); Munții Apuseni, Masivul Vlădeasa, Stâna de Vale, upper section of Jád stream, N 46° 41.867', E 22° 36.666', 1075 m, 5.VI.2015, leg. M. Kiss, J. Oláh & L. Szél (5 males, OPC); Munții Apuseni, Masivul Vlădeasa, Stâna de Vale, Galbenele stream, N 46° 40.809', E 22° 37.147', 1180 m, 7.VI.2015, leg. M. Kiss, J. Oláh & L. Szél (12 males, 8 females, OPC); Munții Apuseni, Masivul Vlădeasa, Stâna de Vale, upper section of Ciripa stream, N 46° 40.546', E 22° 38.515', 1360 m, 6.VI.2015, leg. M. Kiss, J. Oláh & L. Szél (36 males, 13 females, OPC); Munții Apuseni, Cheile Someşului Cald, spring area, N 46° 37' 59.77", E 22° 42' 39.64", 1247 m, 20.V.2015, leg. Cs. Balogh (26 males, 1 female, OPC); Munții Apuseni, V. Cuciulata, spring stream near Piatra Grăitoare, N 46° 38' 38.41", E 22° 41' 40.62", 1521 m, 20.V.2015, leg. Cs. Balogh (9 males, OPC); Munții Apuseni, Munții Gilăului, Stațiunea Muntele Băişorii, Muntele Mare (Öreghavas), Iara (Jára) spring area, N 46° 28.914', E 23° 13.294', 1750 m, 19.VI.2015, singled, leg. J. Oláh, Cs. Balogh & P. Juhász (1 male, 2 females, OPC); Munții Apuseni, Munții Gilăului, Stațiunea Muntele Băişorii, Muntele Mare (Öreghavas), Creţoaia spring area (Posaga tributary), N 46° 28.862', E 23° 13.921', 1750 m, 19.VI.2015, singled, leg. J. Oláh, Cs. Balogh & P. Juhász (1 male, OPC).

Etymology – This beautiful species is named for all Vlach peoples of Illyrian-Thracian-Dacian origin scattered today as Aromans in Albania, Bulgaria, Bosnia-Herzegovina, Croatia, Greece, Republic of Macedonia, Serbia and as well as Romanians in Romania. In Hungarian language Vlach is pronounced as Oláh to lessen consonant dominance. Consequently named also for all Hungarian nominate Oláh families populated the Carpathian Basin, especially the Munții Apuseni, the habitats of *Rhyacophila olahorum* sp. n. and its surroundings from the Middle Ages, including the ancestors of the first author.

Rhyacophila orghidani Botosaneanu, 1952
(Figs 7–12)

Rhyacophila orghidani Botosaneanu, 1952: 721–723: described from Romania (Munții Apuseni, Vidra de Jos).

Material examined – **Romania**: Munții Apuseni, Munții Gilăului, Băişoara, 1.VII.1997, leg L. Újvárosi (1 male, OPC); Munții Apuseni, Munții Gilăului, Băişoara, 1378 m, 30.V.2007, leg M. Bálint (1 male, OPC); Munții Apuseni, Munții Gilăului, Muntele Băişorii, stream Valea Gera, N 46° 33.001', E 23° 20.014', 1055 m, 27.V.2013, singled, leg. J. Oláh, E. Bajka, Cs. Balogh & G. Borics (3 males, 1 female, OPC); Munții Apuseni, Munții Gilăului, Caps, stream Iara, N 46° 35.688', E 23° 15.067', 979 m, 27.V.2013, singled, leg. J. Oláh, E. Bajka, Cs. Balogh & G. Borics (3 males, 1 female, OPC); Munții Apuseni, Munții Gilăului, Stațiunea Muntele Băişorii, three-branched stream, N 46° 30.701', E 23° 16.279', 1620 m, 19.VI.2013, singled, leg. J. Oláh, Cs. Balogh & S. Fekete (97 males, 1 female, OPC); Munții Apuseni, Munții Gilăului, Stațiunea Muntele Băişorii, La Mocirla, spring streams,



Figs 7–12. *Rhyacophila orghidani* Botosaneanu, 1952, 7 = male genitalia in left lateral view, 8 = segment X in dorsal view, 9 = phallic organ in lateral view, 10 = dorsal process on phallotheca in ventral view, 11 = vaginal sclerite complex in ventral view, 12 = vaginal sclerite complex in lateral view

N 46° 30.241', E 23° 15.550', 1552 m, singled, leg. J. Oláh, Cs. Balogh & S. Fekete (8 males, 2 females, OPC); Munții Apuseni, Munții Gilăului, Muntele Băişorii, stream Valea Gera, N 46° 33.001', E 23° 20.014', 1055 m, singled, leg. J. Oláh, Cs. Balogh & S. Fekete (5 males, OPC); Munții Apuseni, Munții Bihor, Bubeşti-Cobleş, tributary P. Cobleş, N 46° 29' 56.08", E 22° 43' 48.64", 14.05.2014, 902 m, leg. Cs. Balogh & B. V. Béres (41 males, 8 females, OPC). Munții Apuseni, Munții Bihor, above Galbena village, valley Cepelor, N 46° 27' 44.01", E 22° 43' 58.88",1035 m, 13.05.2014, leg. Cs. Balogh & B. V. Béres (1 male, 1 female, OPC). Munții Apuseni, Vartop, spring stream (Flescula), N 46° 31' 07.23", E 22° 39' 41.69", 1209 m, 14.05.2014, leg. Cs. Balogh & B. V. Béres (3 males, 3 females, OPC); Munții Apuseni, Munții Gilăului, Stațiunea Muntele Băişorii, La Mocirla, spring streams, N 46° 30.241', E 23° 15.550', 1552 m, 19–20.VI.2015, singled, leg. J. Oláh, Cs. Balogh & P. Juhász (3 males, 1 female, OPC); Munții Apuseni, Munții Gilăului, Stațiunea Muntele Băişorii, three-branched stream, N 46° 30.701', E 23° 16.279', 1620 m, 20.VI.2015, singled, leg. J. Oláh, Cs. Balogh & P. Juhász (3 males, OPC).

Notes – Dorsal profile of apical margin of segment X with small mesal excision delimited by small lateral triangular lobes. Ventral lobe of harpago gradually tapering. Dorsoventral profile of heavily sclerotized head of dorsal process of phallotheca trifid; mesal arm long and pointed. Apical margin of posterior process of vaginal sclerite complex bifid, not truncate.

Rhyacophila pascoei new species complex

Having ventrum IX abbreviated and dorsum IX with apical process, cerci free, phallic organ large and complete with dorsoapical lobe this new complex belongs to the *R. vulgaris* group of the *R. vulgaris* branch. With pronounced paraproct (U-shaped apical band), excised harpago, tripartite aedeagus and the paired dorsal arm of the aedeagus it belongs to *R. vulgaris* subgroup. Inside the subgroup the *R. pascoei* complex is distinguished by reduced aedeagus and shallow excision on harpago: *Rhyacophila biegelmeieri* Malicky 1984, *Rhyacophila diakoftensis* Malicky, 1983, *Rhyacophila neretva* sp. n., *Rhyacophila nurga* sp. and *Rhyacophila pascoei* McLachlan, 1879.

Rhyacophila biegelmeieri Malicky, 1984

Rhyacophila biegelmeieri Malicky, 1984: 297: described from Greece (Grammos Mts, Eptachorion), based on a single male.

Rhyacophila biegelmeieri Malicky, 1984: Malicky (2005: 48): recorded from six localities in Greece.

Rhyacophila biegelmeieri Malicky, 1984: Oláh (2010: 84): recorded from Albania (Tropojë district).

Rhyacophila biegelmeieri Malicky, 1984: Oláh & Kovács (2013: 110): recorded from Albania (Librazhd district).

Material examined – **Albania**: Periferi Tropojë, 11 km S of Bajram Curri, gorge of Pr. i Shijës (220 m) [limestone rocks, river Valbone and the littoral alders, stream Shijës and its littoral willow bush], N 42° 17.927', E 20° 01.731', 7.X.2005, leg. T. Deli, V. Erőss, V. Fehér & D. Murányi (1 male, 2 females, HNHM); Librazhd district, Qukës Shkumbin, Shkumbin River and its karst sidespring at the quarry, N41°05.786', E20°26.551', 380 m, 11.X.2013, leg. P. Juhász, T. Kovács, D. Murányi & G. Puskás (1 male, OPC).

Notes – Apicodorsal process long horizontal, broad based with triangular apex. Cerci enlarged and elongated quadratic with parallel lateral margins. Dorsoapical process of segment X shorter than cerci. Epiproct (anal sclerite) short. Apicodorsal excision on harpagones low. Easily distinguished from its sibling species (*R. diakoftensis* Malicky, 1983, *R. neretva* sp. n., *R. nyurga* sp. n., *R. pascoei* McLachlan, 1879) by the enlarged parameres and by the paramere dorsum densely packed with strong setae. *R. neretva*, *R. nurga* and *R. pascoei* have only a small cluster of setae on parameres subapically ventromesad. *R. diakoftensis* has no any additional setae on parameres; only the single terminal seta is present. The tripartite aedeagus has the paired dorsal arm very short, long at all the other sibling species; ventral arm of the aedeagus long and spatulate in ventral view.

Rhyacophila diakoftensis Malicky, 1983

Rhyacophila diakoftensis Malicky, 1983 in Cakin & Malicky (1983: 267–269): species description is based on the holotype from Greece (Peloponnese, Diakofto). Paratypes listed both from Greece and from the Tara River in Montenegro.

Rhyacophila diakoftensis Malicky, 1983: Malicky (2005: 48): recorded from six localities in Greece.

Material examined – Holotype and paratypes not studied. Newly collected specimens are not available. However, important speciation traits in the genitalia are clearly drawn and described.

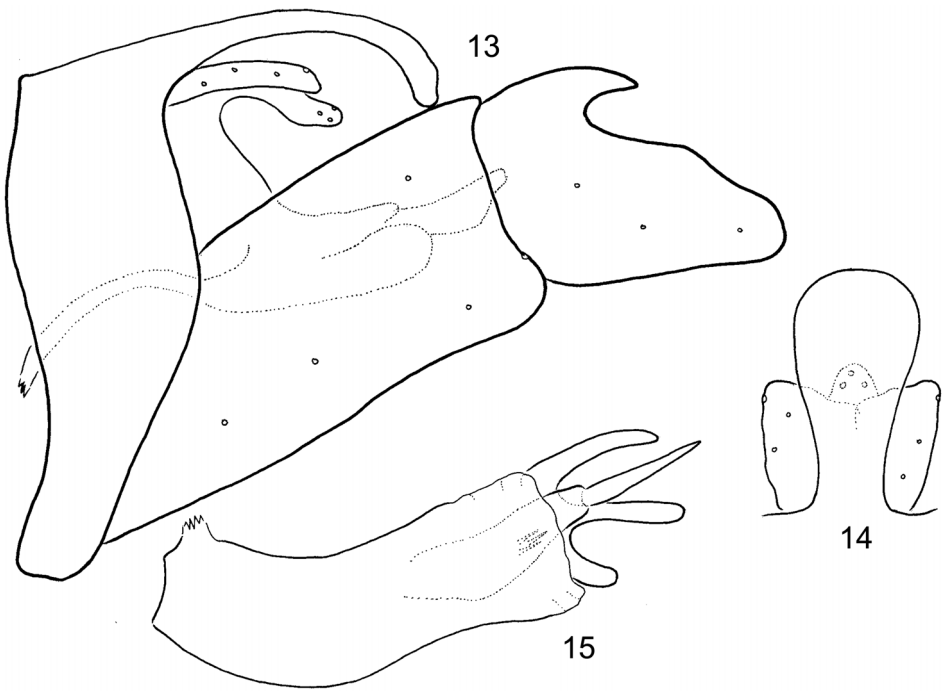
Notes – Apicodorsal process long horizontal, broad with narrowing triangular apex. Cerci short. Dorsoapical process of segment X longer than cerci. Epiproct (anal sclerite) short. Apicodorsal excision on harpagones high. Ventral arm of the tripartite aedeagus very short, paired dorsal arm slender with pointed apex. Distance between paired dorsal and the single middle arm is three times larger than the distance between middle and lower arms. Terminal seta of paramere thin. Presence of additional setae on parameres is not confirmed in the original species drawings and description. However, the absence of additional setae is confirmed by the author (Malicky 1984) when compared to *R. biegelmeieri*.

Rhyacophila neretva Oláh, sp. n.
(Figs 13–15)

Diagnosis – This new species forms a species complex with the closely related sibling species of *R. biegelmeieri* Malicky, 1984, *R. diakoftensis* Malicky, 1983, *R. nurga* sp. n. and *R. pascoei* McLachlan, 1879. Distinguished from all the other siblings by the strongly downward curving clavate dorsal process of segment IX, by the length ratio of cerci and dorsal process of segment X, by the configuration of the tripartite aedeagus.

Description – Male (in alcohol). Medium-sized, light brown animal having light brown wing membrane marbled in darker brown. Maxillary palp formula II-I-IV-V-III. Forewing length 12 mm.

Male genitalia. Ventrum of segment IX strongly abbreviated; dorsal apical lobe of segment IX very long, strongly downward curving and clavate. Cerci half long than apical lobe. Dorsomesal process of segment X longer than cerci. Epiproct (anal sclerite) long, heavily sclerotised with well-developed internal root; paraproct (U-shaped apical band) well-developed, elongate continuing into



Figs 13–15. *Rhyacophila neretva* Oláh, sp. n. 13 = male genitalia in left lateral view, 14 = male genitalia in dorsal view, 15 = phallic organ in lateral view

tergal strap connecting to phallobase. Harpagones with low dorsoapical excision. Phallic apparatus large; phallobase fixed to paraproct by tergal strap without visible suture and to dorsobasal corner of coxopodites by tenons of phallotheca (clasper hanger at Ross) and tendons of gonopods (clasper tendon of Ross); juncture or suture between tenon and tendon discernible; phallotheca without dorsal process; endotheca visible as slightly sclerotised membranous apical area in phallotheca; aedeagus tripartite, lower arm short, oblique to middle arm and with truncate apex in ventral view; distances between dorsal-middle and middle-lower arms are similar. Paramere with very strong apical seta and with small bunch of ventromesal setae middle.

Material examined – Holotype: **Bosnia & Herzegovina**, Neretva River before Mostar, 13.IX.1989, light, leg. J. Oláh (male, OPC). Paratypes: same as holotype (44 males, OPC).

Etymology – Named after the Neretva River where the specimens were collected.

Rhyacophila nurga Oláh, sp. n.
(Figs 16–18)

Diagnosis – A member of the *Rhyacophila pascoei* new species complex. Differs from *R. diakoftensis* Malicky, 1983 by having longer dorsal apical lobe on segment X; apical lobe narrow tapering, not broad middle; cerci very long, not the shortest in the species complex, like at *R. diakoftensis*; epiproct long, not short; configuration of the tripartite aedeagus different.

Description – Male (in alcohol). Medium-sized, light brown animal having light brown wing membrane marbled in darker brown. Maxillary palp formula II-I-IV-V-III. Forewing length 12 mm.

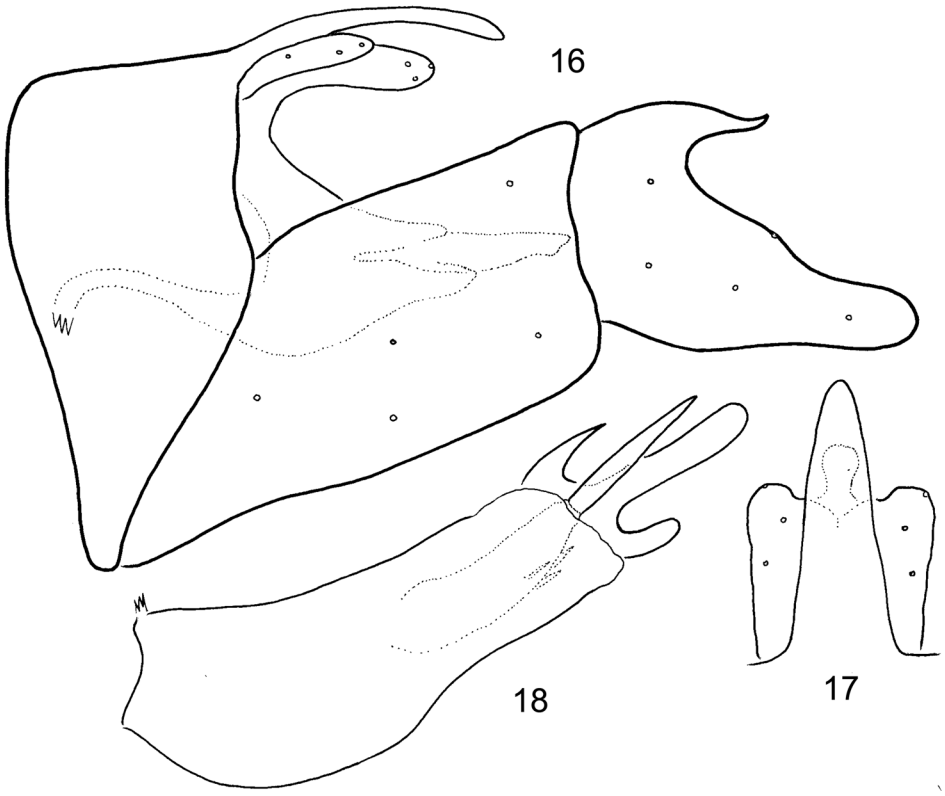
Male genitalia. Ventrum of segment IX strongly abbreviated; dorsal apical lobe of segment IX very long, narrow and tapering. Cerci longer than half length of apical lobe of segment IX. Dorsomesal process of segment X longer than cerci. Epiproct (anal sclerite) long, heavily sclerotised with well-developed internal root; paraproct (U-shaped apical band) well-developed, elongated continuing into tergal strap connecting to phallobase. Harpagones with high dorsoapical excision. Phallic apparatus large; phallobase fixed to paraproct by tergal strap without visible suture and to dorsobasal corner of coxopodites by tenons of phallotheca (clasper hanger at Ross) and tendons of gonopods (clasper tendon of Ross); juncture or suture between tenon and tendon discernible; phallotheca without dorsal process; endotheca visible as slightly sclerotised membranous apical area in phallotheca; aedeagus tripartite, dorsal and lower arm almost equal long; middle arm very strong and long; distances between dorsal-middle and

middle-lower arms are similar. Paramere with very strong apical seta and with small bunch of ventromesal setae middle.

Material examined – Holotype: **Montenegro**, Pivska Planina, Crkvicko Polje, near Rudine Village, 1117 m, N 43° 19' 48"; E 18° 53' 41", 7.VIII.2015, leg. S. Beshkov & A. Nahirnic (male, OPC).

Etymology – *Nurga*, from "nyurga", slender or elongate in Hungarian with reference to the elongate apicodorsal process of segment IX, cerci, paraproct and epiproct.

Notes – A single male specimen was collected in Montenegro, very near to the locality of the Montenegro paratypes of the *R. diakoftensis*, described from the Greece holotype. The Montenegro paratypes of *R. diakoftensis* are probably misidentified.



Figs 16–18. *Rhyacophila nurga* Oláh, sp. n. 16 = male genitalia in left lateral view, 17 = male genitalia in dorsal view, 18 = phallic organ in lateral view

Rhyacophila pascoei McLachlan, 1879

Material examined – **France**: Aveyron Department, Millau, Tarn River confluence avec la Dombie River, 25.X.2012, leg. G. Coppa (2 males, OPC). **Germany**: Rheinau, 15.IV.1895, Klapálek's Collection in National Museum, Prague, Czech Republic (K-392: 1 male, K-393: 1 male, 1 female, K-394: 1 male, NMPC).

Rhyacophila polonica McLachlan, 1879

Material examined – **Bulgaria**: Eastern Rodopi, near Egrek village, 514 m, N 41° 19' 17", E 25° 38' 17", 2.V.2013, at lights, leg. S. Beshkov & B. Beshkovi (1 male, 3 associated females, OPC).

Glossosomatidae

Agapetus belareca Botosaneanu, 1957

Material examined – **Bulgaria**: Eastern Rodopi, near Strazhetz, above the crossroad Gugutka-Krumovgrad, 575 m, N 41° 21' 11", E 25° 50' 35", 24.VII.2012, at lights, leg. S. Beshkov & M. Beshkova (2 males, OPC); Eastern Rhodopi, Byala Reka River, Zhultichalskoto dere near Meden Buk Village, Ivaylovgrad District, 111 m, N 41° 22' 48", E 26° 01' 39", 3.V.2013, at lamps, light traps, leg. S. Beshkov & B. Beshkovi (1 male, OPC).

Agapetus ochripes Curtis, 1834

Material examined – **Montenegro**: Maglic Mts, above Pivsko jezero, Razvrsje above Mratinje Village, 1248 m, N 43° 16' 03"; E 18° 49' 35", 8.VIII.2015, leg. S. Beshkov & A. Nahirnic (4 males, NMBA).

Agapetus slavorum Botosaneanu, 1960

Material examined – **Montenegro**: Maglic Mts, above Pivsko jezero, Razvrsje above Mratinje Village, 1248 m, N 43° 16' 03", E 18° 49' 35", 8.VIII.2015, leg. S. Beshkov & A. Nahirnic (4 males, NMBA, 4 males, OPC); Durmitor Mts, Nadgorje, 1735 m, N 43° 11' 33"; E 19° 02' 39", 6.VIII.2015, leg. S. Beshkov & A. Nahirnic (1 male, NMBA).

Hydroptilidae

Agraylea sexmaculata Curtis, 1834

Material examined – **Bulgaria**: Pazardzhik Region, Byaga Village, N 42° 04' 06", E 24° 22' 43", 262 m, 4.IX.2015, leg. D. Kaynarov (10 males, 3 females, NMBA, 8 males, 2 females, OPC).

Phryganeidae

Agrypnia varia (Fabricius, 1793)

Material examined – **Bulgaria**: Russe Region, Russenski Lom National park, near Tabachka village, 251 m, N 43° 35' 27", E 25° 59' 08", 25.VIII.2012, at lights, leg. S. Beshkov & M. Beshkova (1 male, OPC).

Trichostegia minor Curtis, 1934

Material examined – **Bulgaria**: Strandza–Black Sea Coast, Veleka River near Sinemoretz, 10 m, N 42° 03' 35", E 27° 57' 37", 28.VII.2012, at lights, leg. S. Beshkov & M. Beshkova (1 male, OPC); Strandza–Black Sea Coast, Ropotamo Hunting Farm, near Velyov Vir Reserve, 7 m, N 42° 18' 06", E 27° 42' 22", 30.VII.2012, at lights, leg. S. Beshkov & M. Beshkova (2 males, NMBA).

Limnephilidae

Ecclisopteryx dalecarlica Kolenati, 1848

Material examined – **Bulgaria**: Western Rhodopi, Sumena Reka, near crossroad to Zmeitza, 1245 m, N 41° 39' 20", E 24° 13' 44", 16.VI.2012, at lamps, light traps, leg. S. Beshkov, M. Beshkova & V. Gashtarov (1 male, 1 female, NMBA); Central Stara Planina Mts, Elenova Gora Reserve, near Skobelevo Village, Mazalat Forestry, 872 m, N 42° 44' 34", E 25° 08' 50", 1.VIII.2014, leg. S. Beshkov (1 male, 1 female, OPC).

Limnephilus extricatus McLachlan, 1865

Material examined – **Montenegro**: Durmitor Mts, Tabljak distr. Uskocki Canyon, Pirlitor, Vrela, 1273 m, N 43° 09' 42", E 19° 13' 53", 6.VIII.2014, leg. S. Beshkov (2 males, NMBA).

Limnephilus flavospinosus Stein, 1874

Material examined – **Bulgaria**: SW Bulgaria, S Pirin Mts, Below Orelak Top, Gotze Delchev district, 1928 m, 21.VII.2014, leg. S. Beshkov & S. Abadjiev (1 male, NMBA).

Limnephilus marmoratus Curtis, 1834

Material examined – **Montenegro**: Pivska Planina, Trsa near Kulici, 1441 m, 17.VII.2014, leg. S. Beshkov (1 male, OPC).

Halesus digitatus (Schrank, 1781)

Material examined – **Bulgaria**: Rhodopi, Yadenitza, above Golyamo Belovo, 1167 m, N 42° 06' 15", E 23° 54' 11", 6.IX.2012, at lamps, light traps, leg. S. Beshkov & M. Beshkova (2 males, 1 female, NMBA).

Mesophylax aspersus (Rambur, 1842)

Material examined – **Bulgaria**: Eastern Rhodopi, Byala Reka River, Zhultichalskoto dere near Meden Buk Village, Ivaylovgrad District, 111 m, N 41° 22' 48", E 26° 01' 39", 3.V.2013, at lamps, light traps, leg. S. Beshkov & B. Beshkovi (1 male, OPC); Eastern Rhodopi Mts, Kodzhakaya (Likana), between Odrintzi and Byalo Pole villages, Ivaylovgrad district, 228 m, N 41° 26' 59"; E 26° 08' 28", 4.IV.2015, S. Beshkov (2 males, 4 females, NMBA). **Greece**: N. Greece, Eastern Rhodopi Mts, Avdella Village between Kiprinos and Mataxasis, 167 m, N 41° 25' 47", E 26° 12' 03", 1.V.2014, leg. S. Beshkov & S. Abadjiev (4 males, 2 female, OPC).

Potamophylax borislavi Kumanski, 1975

Material examined – **Bulgaria**: Rhodopi, Yadenitz,a above Golyamo Belovo, 1167 m, N 42° 06' 15", E 23° 54' 11", 6.IX.2012, at lamps, light traps, leg. S. Beshkov & M. Beshkova (4 males, NMBA, 2 males, 1 female, OPC); Rhodopi, on the road to Milevi Skali from Semchinovo, 941 m, N 42° 09' 13", E 24° 04' 12", 5.IX.2012, at lamps, light traps, leg. S. Beshkov & M. Beshkova (2 males, OPC).

Potamophylax cingulatus (Stephens, 1837)

Material examined – **Bulgaria**: Rhodopi, Yadenitza, above Golyamo Belovo, 1167 m, N 42° 06' 15", E 23° 54' 11", 6.IX.2012, at lamps, light traps, leg. S. Beshkov & M. Beshkova (11 males, 2 females, NMBA, 4 males, 2 females, OPC); Vrachanska Planina, above Zgarigrad, mine galleries, Vratsa District, 845 m, N 43.15919°, E 23.48676°, 9.IX.2012, at lamps, light traps, leg. S. Beshkov & M. Beshkova (6 males, 2 females, NMBA, 4 males, 2 females, OPC); Rhodopi, on the road to Milevi Skali from Semchinovo, 941 m, N 42° 09' 13", E 24° 04' 12", 5.IX.2012, at lamps, light traps, leg. S. Beshkov & M. Beshkova (12 males, 10 females, OPC). **Montenegro**: Durmitor Mts, Tabljak district, Uskocki Canyon, Pirlitor, Vrela, 1273 m, N 43° 09' 42", E 19° 13' 53", 6.VIII.2014, leg. S. Beshkov (2 males, OPC).

Potamophylax latipennis (Curtis, 1834)

Material examined – **Bulgaria**: Rhodopi, Yadenitza above Golyamo Belovo, 1167 m, N 42° 06' 15", E 23° 54' 11", 6.IX.2012, at lamps, light traps, leg. S. Beshkov

& M. Beshkova (28 males, 3 females, NMBA, 12 males, 2 females, OPC). **Serbia**: Tzaribrod district, Erma Gorge near Poganovo, 577 m, N 42° 57' 57", E 22° 32' 14", 22.X.2013, leg. S. Beshkov (5 males, OPC).

Stenophylax caesareicus Schmid, 1959

Material examined – **Bulgaria**: Central Stara Planina Mts, below Botev Top, 2222 m, N 42° 39' 09", E 23° 11' 56", 26.VII.2014, at light, leg. S. Beshkov (1 NMBA, OPC).

Stenophylax hatatitlus (Malicky, 1985)

Material examined – **Bulgaria**: Eastern Rhodopi Mts, Krumovitza Valley, near Zlatolist Village, 299 m, N 41° 30' 33", E 25° 37' 11", 18.X.2014, leg S. Beshkov & S. Abadjiev (18 males, 1 female, NMBA, 4 males, 1 female, OPC).

Stenophylax permistus McLachlan, 1895

Material examined – **Bulgaria**: Central Stara Planina Mts, below Botev Top, 2222 m, N 42° 39' 09", E 23° 11' 56", 26.VII.2014, at light, leg. S. Beshkov (1 male, NMBA).

Stenophylax sequax (McLachlan, 1875)

Material examined – **Bulgaria**: Strandza–Black Sea Coast, above Izgrev Village, Tzarevo distr., 83 m, N 42° 07' 56", E 27° 49' 03", 27.VII.2012, at lights, leg. S. Beshkov & M. Beshkova (1 male, NMBA).

Beraeidae

Beraeamyia sp. n.

Material examined – **Bulgaria**: Central Stara Planina Mts, Elenova Gora Reserve near Skobelevo Village, Mazalat Forestry, 872 m, N 42° 44' 34", E 25° 08' 50", 1.VIII.2014, leg. S. Beshkov (1 male, NMBA).

Note – Further material is required to describe this new species.

Leptoceridae

Athripsodes longispinosus (Martynov, 1909)

Material examined – **Bulgaria**: Eastern Rhodopi, Byala Reka River, Zhultichalskoto dere near Meden Buk Village, Ivaylovgrad District, 121 m, N 41° 22' 48", E 26° 01' 40", 25.VII.2012, at lamps, light traps, leg. S. Beshkov & M. Beshkova (2 males, OPC).

Oecetis testacea (Curtis, 1834)

Material examined – **Bulgaria**: Eastern Rhodopi, Byala Reka River, Zhultichalskoto dere near Meden Buk Village, Ivaylovgrad District, 121 m, N 41° 22' 48", E 26° 01' 40", 25.VII.2012, at lamps, light traps, leg. S. Beshkov & M. Beshkova (1 male, OPC); Yazovir Iskar Dam, near Passarel Village, Samokov district, 767 m, N 42° 31' 33", E 23° 31' 58", 30.VI.2014, leg. S. Beshkov & S. Abadjiev (3 males, 6 females, NMBA).

Parasetodes respersellus (Rambur, 1842)

Material examined – **Bulgaria**: Eastern Rhodopi, Byala Reka River, Zhultichalskoto dere near Meden Buk Village, Ivaylovgrad District, 121 m, N 41° 22' 48", E 26° 01' 40", 25.VII.2012, at lamps, light traps, leg. S. Beshkov & M. Beshkova (1 male, OPC); SE Bulgaria, Eastern Rhodopi Mts, near Odrintzi Village, 206 m, N 41° 26' 59", E 26° 08' 28", 16.VIII.2014, at light, light traps, leg. S. Beshkov (4 males, 2 females, NMBA, 4 males, 2 females, OPC).

REFERENCES

Botosaneanu L. 1952: Rhyacophila orghidani n. sp. (Trichoptera, Rhyacophilinae) din Munții Apuseni ai R. P. R. – *Comunicările Academiei Republicii Populare Române* **2**(11–12): 721–724.

Cakin F. & Malicky H. 1983: Neue Köcherfliegen (Trichoptera) aus der Türkei und von der Balkanhalbinsel. – *Entomologische Zeitschrift* **93**(18): 267–270.

Malicky H. 1983: *Atlas of European Trichoptera. Series Entomologica* 24. – Dr. W. Junk Publishers, The Hague-Boston-London, XII+298 pp.

Malicky H. 1984: Vier neue mediterrane Köcherfliegen (Trichoptera). – *Entomologische Zeitschrift* **94**(20): 297–301.

Malicky H. 2004: *Atlas of European Trichoptera. Second edition*. – Springer, Dordrecht, 359 pp.

Malicky H. 2005: Die Köcherfliegen Griechenlands. – *Denisia* **17**: 240.

Oláh J. 2010: New species and new records of Palaearctic Trichoptera in the material of the Hungarian Natural History Museum. – *Annales historico-naturales Musei nationalis hungarici* **102**: 65–117.

Oláh J. & T. Kovács 2013: New species and records of Balkan Trichoptera II. – *Folia historico-naturalia Musei Matraensis* **37**: 109–121.

Schmid F. 1970: *Le genre Rhyacophila et la famille des Rhyacophilidae (Trichoptera)*. – Société Entomologique du Canada, Ottawa, 230 pp.