

First check list of Serbian Trichoptera

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ABSTRACT: One hundred and seventy-three species of Trichoptera have been reported to date in the fauna of Serbia. Of the recorded species, *Limnephilus petri* Marinkovic is endemic for the fauna of Serbia; *Chaetopteryx maxima* Kumanski and *Drusus botosaneanui* Kumanski are endemics of the Eastern Balkans zoogeographic region; and *Rhyacophila bosniaca* Schmid and *Rhyacophila vranitzensis* Marinkovic et Botosaneanu are endemics of the Dinaric Western Balkans.

Of the 173 species, 65.3% (113 species) also inhabit at least one other republic of the former Yugoslavia in addition to Serbia. These are in fact species with a limited range of distribution (in the central and western parts of the Balkan Peninsula).

Introduction

The Trichoptera represent a homogeneous group of insects with two suborders: Annulipalpia and Integipalpia. This division was supplemented by Ross (1967), who relegated all recent Trichoptera to three superfamilies: Rhyacophiloidea (with the families Rhyacophilidae, Glossosomatidae, and Hydroptilidae); Hydropsychoidea (includes all Annulipalpia except the indicated families of Rhyacophiloidea); and Limnephiloidea (all Integipalpia). About 10,000 species have been described to date, although it is estimated that around 50,000 exist HOLZENTHAL & BLAHNIK (2000). Eight hundred and ninety-five species are known in the fauna of Europe Illies (1978).

The first faunistic data on Trichoptera of the former Yugoslavia were given by RADOVANOVIC (1931), who registered 59 species. Four years later, RADOVANOVIC (1935) published a list of 170 species of Trichoptera. Nine species new for the fauna of Yugoslavia were reported and two species new to science (*Drusus discophorus* Radovanovic and *Drusus plicatus* Radovanovic) were described in 1943, RADOVANOVIC (1943). RADOVANOVIC (1953) subsequently found 45 additional species of Trichoptera, of which six (*Cyrnus cernatiocornis* Kolenati, *Leptocerus annulicornis* Stephens, *Colpotaulius incisus* Curtis, *Grammotaulius nitidus* Müller, *Limnephilus stigma* Curtis and *Oecismus monedula* Hagen) were new for the fauna of Yugoslavia.

A great contribution to knowledge about Trichoptera of the former Yugoslavia was made by MARINKOVIC-GOSPODNETIC. The indicated author in 1966 described five species new to science and for the fauna of Yugoslavia: *Chaetopteryx gonospina* Mar., *Chaetopteryx stankovici* Mar., *Hydropsyche botosaneanui* Mar., *Plectrocnemia smiljae* Mar., *Limnophilus petri* Mar. She subsequently described six species new to science and for the fauna of Yugoslavia in 1970 (*Drusus klapaleki* Mar., *Drusus radovanovici* Mar., *Drusus ramae* Mar., *Potamophylax schmidi* Mar., *Psylopteryx bosniaca* Mar. and *Crunoecia bosniaca* Mar.) and two more in 1971 (*Drusus serbicus* Mar. and *Drusus croaticus* Mar.). Investigating the

Trichoptera fauna of the Morača River and its tributaries, MARINKOVIĆ-GOSPODNETIĆ (1981) found seven species new for the territory of Yugoslavia: *Glossosoma bifidum* Hagen, *Hydroptila vectis* Curtis, *Limnephilus graecus* Schmid, *Athripsodes dissimilis* Linne, *Triaenodes ochrellus* Ramb., *Oecetis ochracea* Curtis and *Leptocerus interruptus* Fabricus.

The number of authors who have conducted research on the Trichoptera faunas of republics of the former Yugoslavia is small.

The Trichoptera fauna of Slovenia has been little investigated: only 54 species have been recorded RADOVANOVIĆ (1933, 1953).

About 120 species have been recorded for the fauna of Croatia MATONICKIĆ (1959, 1987); PAVLETIĆ and MATONICKIĆ (1972); HABDIJA (1979); MATONICKIĆ et al. (1975).

Of republics of the former Yugoslavia, Bosnia-Herzegovina is the one with the most thoroughly studied fauna of Trichoptera. Thanks to the investigations of RADOVANOVIĆ (1953) and MARINKOVIĆ-GOSPODNETIĆ (1970a, 1978, 1979), about 300 species of Trichoptera have been recorded there.

Around 140 species of Trichoptera have been recorded in the fauna of Macedonia. The first comprehensive investigations of the Trichoptera fauna of Macedonia were carried out by RADOVANOVIĆ (1943, 1953), who found 46 species. The Trichoptera fauna of Macedonia was also investigated by Botosaneanu (1960), who recorded 41 species for the territory of Western Macedonia, 26 of them being new for the fauna of Macedonia. PAVLOVSKI (1991) registered 15 species of Trichoptera in the Babuna River, of which *Rhyacophila loxias* Schmid and *Rhyacophila armeniaca* Guer were new for the fauna of Macedonia. ARSOV (1991) found 41 species of Trichoptera in the Zrnovska River, eight of them new for the fauna of Macedonia.

The Trichoptera fauna of Montenegro has been only partially studied, but can be said to be rich. The greatest number of described species come from the region of Mt. Durmitor, on which about 150 species have been confirmed. The first faunistic data on the Trichoptera fauna of Montenegro (the region of Mt. Durmitor) were given by RADOVANOVIĆ (1935, 1953), who recorded 19 species. MALICKY (1982) described a species new to science, *Plectrocnemia mojkovacensis*, from the Bistrica River and the species *Rhyacophila diakoftensis* from the Tara River MALICKY (1983). KRUSNIK (1987) found 95 species of Trichoptera on Mt. Durmitor, 67 of them new for the fauna of Montenegro. Studying the Trichoptera of the Moraca River and its tributaries (the Zeta, Slatina, Manastir, Maljestak, and Plavnica Rivers), MARINKOVIĆ-GOSPODNETIĆ (1981) recorded 48 species of Trichoptera.

In the Trichoptera fauna of Serbia, 151 species were registered up to 1980. Data on the fauna were published in papers of RADOVANOVIĆ (1931, 1935, 1953) and MARINKOVIĆ-GOSPODNETIĆ (1975, 1980). In the past 20 years, information has been gathered on the larvae of this very interesting group of insects, which have been studied within the framework of research on the macrozoobenthos of aquatic ecosystems SIMIĆ (1993); SIMIĆ & OSTOJIĆ (1994); MARKOVIĆ (1995); MARKOVIĆ & MILJANOVIĆ (1995); KONTA (1997); MARKOVIĆ et al. (1997, 1997a, 1997b); MARKOVIĆ (1998); MARKOVIĆ et al. (1998); MARTINOVIĆ-VITANOVIĆ et al. (1998); MARKOVIĆ et al. (1999); MILJANOVIĆ (2000); STRAHINIĆ (2000); PAUNOVIĆ (2001); ŽIVIĆ et al. (2001, 2001a).

The inadequate investigation of Trichoptera in Serbia presents a challenge to researchers, and it is to be hoped that considerably more attention will be devoted to this very interesting order of insects in the period to come.

Results

One hundred and seventy-three species of Trichoptera have been reported to date in the fauna of Serbia. Subsequent to the investigations of RADOVANOVIC (1931, 1935, 1953) and MARINKOVIC-GOSPODNETIC (1975, 1980), 22 more species of Trichoptera new for the fauna of Serbia were recorded (at the larval stage) BARACKOV (1973); KONTA (1997); SIMIC (1993); MARKOVIC et al. (1997a); MARKOVIC (1998); MARKOVIC et al. (1998, 1999); STRAHINIC (2000); ŽIVIC et al. (2001); ŽIVIC et al. (2001a). Among the registered species, *Limnephilus petri* Marinkovic is endemic for the fauna of Serbia; the species *Chaetopteryx maxima* Kumanski and *Drusus botosaneanui* Kumanski are endemics of the Eastern Balkans zoogeographic region; and *Rhyacophila bosniaca* Schmid and *Rhyacophila vranitzensis* Marinkovic et Botosaneanu are endemics of the Dinaric Western Balkans ILLIES (1978).

The greatest number of recorded species of Trichoptera belong to the families Limnephilidae (32.94%) and Rhyacophilidae (13.29%). The family Hydroptilidae is represented by three species; the families Helicopsychidae and Odontoceridae are each represented by two species; and the families Ecnomidae, Phryganeidae, and Uenoidae are each represented by a single species. It has been established that 113 species also inhabit at least one other republic of the former Yugoslavia in addition to Serbia. These are in fact species with a limited range of distribution (in the western and central parts of the Balkan Peninsula).

Investigations of Trichoptera have to date been carried out on a small area of Serbia. Moreover, greater diversity of this order of insects has been recorded in neighboring countries (where more attention has been paid to the Trichoptera): about 230 species have been registered in Bulgaria KUMANSKI (1985, 1988); 240 species in Romania ARSOV (1991); 211 species in Hungary SCHMERA (2001); and 300 species in Bosnia-Herzegovina RADOVANOVIC (1953); MARINKOVIC-GOSPODNETIC (1970a, 1978, 1979). In view of these facts, it can be assumed that the diversity of Trichoptera in Serbia is significantly greater than the reported 173 species.

FAUNISTIC DATA ON TRICHOPTERA SPECIES REPORTED IN SERBIA

The list of recorded species of Trichoptera is given in accordance with the systematics of ILLIES (1978) from „Limnofauna Europea“. Given in parentheses after each species name are numbers indicating who reported it (the numbers are ordinal numbers of authors in the list of references).

RHYACOPHILIDAE

- Rhyacophila aquitanica* Mac Lachlan, 1879 (17)
- Rhyacophila balcanica* Radovanovic, 1953 (17, 40)
- Rhyacophila bosniaca* Schmid, 1970 (20)
- Rhyacophila furcifera* Klapalek, 1904 (17)
- Rhyacophila fischeri* Botosaneanu, 1957 (20)
- Rhyacophila hirticornis* Mac Lachlan (20, 40)
- Rhyacophila laevis* Pictet, 1834 (17, 40)
- Rhyacophila loxias* Schmid, 1970 (17)
- Rhyacophila nubila* Zetterstet, 1840 (2, 7, 17, 27, 35, 38, 40, 46, 48, 50)
- Rhyacophila obliterata* Mac Lachlan, 1863 (17)
- Rhyacophila obtusa* Klapalek, 1894 (**R. obtusidens**) (17, 40)
- Rhyacophila polonica* Mac Lachlan, 1879 (7, 17)
- Rhyacophila trescavicensis* Botosaneanu, 1960 (20)
- Rhyacophila tristis* Pictet, 1834 (2, 17, 42)
- Rhyacophila vranitzensis* Marinkovic et Botosaneanu, 1967 (17)

Rhyacophila fasciata Hagen, 1859 (*Rh. septentrionis*) (24, 26, 28, 29, 38, 40)
Rhyacophila evoluta Mac Lachlan, 1879 (38, 40)
Rhyacophila vulgaris Pictet (38, 40)
Rhyacophila dorsalis Curtis, 1834 (25, 35)
Rhyacophila philopotamoides Mac Lachlan, 1879 (2)
Rhyacophila pascoei Mac Lachlan, 1879 (48, 49, 50)
Rhyacophila praemorsa Mac Lachlan, 1879 (7)

GLOSSOSOMATIDAE

Glossosoma bifidum Hagen (17)
Glossosoma boltoni Curtis, 1834 (7, 17, 35, 38, 46)
Glossosoma discophorum Klapalek, 1902 (17)
Syngapetus iridipennis Mac Lachlan, 1902 (17)
Syngapetus krawanyi Ulmer, 1938 (20)
Agapetus laniger Pictet, 1834 (17, 40)
Agapetus ochripes Curtis, 1834 (**A. comatus**) (17, 40)
Agapetus slavorum Botosaneanu, 1960 (17)
Agapetus fuscipes Curtis, 1834 (27, 46)

HYDROPTILIDAE

Hydroptila vectis Curtis, 1834 (2)
Hydroptila sparsa Curtis, 1834 (46)
Agraylea multipunctata Curtis, 1834 (28)

PHILOPOTAMIDAE

Philopotamus montanus Donovan, 1813 (7, 17, 35, 38, 40, 42, 46)
Philopotamus variegatus Scopoli, 1763 (17, 42)
Wormaldia occipitalis Pictet, 1834 (17)
Wormaldia pulla Mac Lachlan, 1878 (17)
Wormaldia subnigra Mac Lachlan, 1865 (2, 17, 46)
Chimarra marginata Linne, 1767 (unpublished data)

HYDROPSYCHIDAE

Dipletrona atra Mac Lachlan (*Hydropsyche helenica*) (17)
Dipletrona felix Mac Lachlan (35, 37)
Hydropsyche angustipennis Curtis, 1834 (7, 17, 22, 25, 27, 29, 30, 35, 38, 40, 48, 49, 50, 51, 52)
Hydropsyche botosaneanui Marinkovic-Gospodnetic, 1966 (20)
Hydropsyche bulbifera Mac Lachlan, 1878 (7)
Hydropsyche contubernalis Mac Lachlan, 1865 (29, 48, 49, 50)
Hydropsyche modesta Novás, 1925 (*Hydropsyche dissimulata* Kumanski et Botosaneanu) (20, 50, 51)
Hydropsyche fulvipes Curtis, 1834 (17, 42, 51)
Hydropsyche instabilis Curtis, 1834 (7, 17, 35, 40, 50)
Hydropsyche ornata Mac Lachlan, 1878 (17, 42)
Hydropsyche pellucidula Curtis, 1834 (7, 17, 22, 24, 26, 27, 28, 29, 35, 45, 48, 49, 51, 52)
Hydropsyche peristeriaca Botosaneanu et Marinkovic, 1966 (17)
Hydropsyche saxonica Mac Lachlan, 1884 (2, 17, 27, 48, 49, 50)
Hydropsyche tabacarui Botosaneanu, 1960 (17)
Hydropsyche tjederi Botosaneanu et Marinkovic, 1966 (17)
Cheumatopsyche lepida Pictet, 1834 (2, 17, 45, 46, 48)

POLYCENTROPODIDAE

Neureclipsis bimaculata Linne, 1758 (17, 51)
Plectrocnemia minima Klapalek, 1899 (17)
Plectrocnemia conspersa Curtis, 1834 (35, 38, 40)

Plectrocnemia geniculata Mac Lachlan, 1871 (40, 46)
Polycentropus irroratus Curtis, 1835 (25, 27)
Polycentropus flavomaculatus Pictet, 1834 (17, 22, 30, 35, 38, 40, 42, 48)
Polycentropus excisus Klapalek, 1894 (20)
Holocentropus stagnalis Albarda, 1874 (17)
Cyrnus flavidus Mac Lachlan, 1864 (49)
Cyrnus crenaticornis Kolenati, 1859 (17, 42)
Cyrnus trimaculatus Curtis, 1834 (17)

PSYCHOMYIDAE

Psychomyia pusilla Fabricius, 1781 (17, 35, 40, 42)
Lype reducta Hagen, 1860 (17)
Metalype fragilis Pictet, 1834 (20)
Tinodes pallidulus Mac Lachlan, 1878 (17)
Tinodes rostocki Mac Lachlan, 1878 (17)
Tinodes unicolor Pictet, 1834 (17)

ECNOMIDAE

Ecnomus tenellus Rambur, 1842 (17, 42)

PHRYGANEIDAE

Phryganea grandis Linne, 1758 (7, 17, 42)

BRACHYCENTRIDAE

Brachycentrus montanus Klapalek, 1891 (17)
Micrasema minimum Mac Lachlan, 1876 (17, 46)
Micrasema sericeum Klapalek, 1902 (17)
Oligoplectrum maculatum Fourcroy, 1785 (20, 35, 46)

LIMNEPHILIDAE

Drusus annulatus Stephens (42)
Drusus biguttatus Pictet, 1834 (17, 38)
Drusus botosaneanui Kumanski, 1968 (20)
Drusus discolor Rambur, 1834 (17)
Drusus discophorus Radovanovic, 1942 (20)
Drusus serbicus Marinkovic, 1971 (17)
Drusus trifidus Mac Lachlan, 1868 (42)
Ecclisopteryx guttulata Pictet, 1834 (17)
Limnephilus affinis Curtis, 1834 (17)
Limnephilus auricula Curtis, 1834 (17)
Limnephilus bipunctatus Curtis, 1834 (7, 17, 35, 42)
Limnephilus extricatus Mac Lachlan, 1865 (2, 17)
Limnephilus flavicornis Fabricius, 1787 (17, 27, 35, 42)
Limnephilus fuscicornis Rambur, 1842 (20)
Limnephilus lunatus Curtis, 1834 (7, 17, 27)
Limnephilus petri Marinkovic, 1966 (17)
Limnephilus rhombicus Linne, 1758 (17, 38)
Limnephilus sparsus Curtis, 1834 (17)
Limnephilus vittatus Fabricius, 1798 (17)
Limnephilus centralis Curtis, 1834 (38, 40)

Limnephilus marmoratus Curtis (38, 40)
Grammotaulius nitidus Müller, 1764 (17, 42)
Glyptotaelius pellucidus Retzius, 1783 (17, 42, 46)
Anabolia furcata Brauer, 1857 (17)
Anabolia nervosa Curtis, 1834 (7, 17, 24, 26, 27, 28, 29, 38, 40, 46, 48, 49, 50)
Rhadicoleptus alpestris Kolenati, 1848 (17)
Parachiona picicornis Pictet, 1834 (20)
Potamophylax latipennis Curtis, 1834 (*P. cingulatus*, *P. stellatus*, *Stenophylax latipennis*) (7, 17, 26, 27, 35, 38, 40, 46, 50)
Potamophylax luctuosus Piller et Mitterpacher, 1783 (17, 40)
Potamophylax nigricornis Pictet, 1834 (17, 27, 46)
Potamophylax pallidus Klapalek, 1900 (17)
Psilopteryx montana Kumanski, 1968 (17)
Halesus digitatus Schrank, 1781 (17, 38, 40, 46)
Halesus tessellatus Rambur, 1842 (20, 38, 40)
Halesus radiatus Curtis, 1834 (*H. interpunctatus*) (26, 38, 40, 46)
Hydatophylax infumatus Mac Lachlan, 1865 (2, 20)
Stenophylax mucronatus Mac Lachlan, 1880 (7)
Stenophylax permistus Mac Lachlan, 1895 (40)
Stenophylax mitis Mac Lachlan, 1875 (17)
Stenophylax vibex speluncarum Mac Lachlan, 1875 (17, 40, 42)
Metanoea flavipennis Pictet, 1834 (*M. chapmani*) (40)
Mesophylax impunctatus Mac Lachlan, 1884 (40)
Micropterna nycterobia Mac Lachlan, 1875 (17, 27, 40, 42)
Micropterna testacea Gmelin, 1798 (27)
Micropterna sequax Mac Lachlan, 1875 (40)
Annitella triloba Marinkovic, 1955 (20)
Annitella obscurata Mac Lachlan, 1876 (27)
Allogamus auricollis Pictet, 1834 (7, 17)
Allogamus uncatius Brauer, 1857 (17)
Chaetopteryx cissylyanica Botosaneanu, 1960 (17)
Chaetopteryx stankovici Marinkovic, 1966 (17)
Chaetopteryx maxima Kumanski, 1968 (20)
Chaetopteryx schmidi Botosaneanu, 1957 (20)
Chaetopteryx villosa Fabricius, 1798 (38)
Crunoecia bosniaca Marinkovic-Gospodnetic, 1970 (20)
Crunoecia kempnyi Morton, 1901 (20)

GOERIDAE

Goera pilosa Fabricius, 1775 (2, 17, 23, 27, 26, 29, 38, 40)
Lithax obscurus Hagen, 1859 (17, 27, 42, 46)
Lithax nigra Hagen, 1859 (22, 27)
Silo nigricornis Pictet, 1834 (2)
Silo pallipes Fabricius, 1781 (2, 17, 35, 38, 40, 42, 46)
Silo piceus Brauer, 1857 (17, 40, 46)

UENOIDAE

Thremma anomalum Mac Lachlan, 1877 (17)

LEPIDOSTOMATIDAE

Lasiocephala basalis Kolenati, 1848 (17, 38)
Lepidostoma hirtum Fabricius, 1775 (27, 50)

LEPTOCERIDAE

- Athripsodes albifrons* Linne, 1758 (*A. interjectus*) (7)
Athripsodes aterrimus Stephens, 1836 (17)
Athripsodes bilineatus Linne, 1758 (17, 50)
Athripsodes commutatus Rostock, 1874 (17)
Mystacides azurea Linne, 1761 (17, 42, 46)
Mystacides nigra Linne, 1758 (17)
Mystacides longicornis Linne, 1758 (*M. concolor*, *monochroa*, *leucoptera*) (40, 46)
Ylodes simulans Tjeder, 1929 (*Trienodes forsslundi*) (17)
Trienodes kawraiskii Martynov, 1909 (17)
Setodes hungaricus Ulmer, 1908 (17)
Leptocerus interruptus Fabricius, 1775 (17)
Ceracela annulicornis Stephens, 1836 (*Leptocerus futilis*, *lugens*, *recurvatus*, *Mystacides perfusus*) (42)
Adicella balcanica Botosaneanu et Novak, 1965 (17)
Adicella filicornis Pictet, 1834 (17)
Adicella syriaca Ulmer, 1907 (17)

SERICOSTOMATIDAE

- Oecismus monedula* Hagen, 1859 (17)
Sericostoma flavicorne Schneider, 1845 (*S. timidum*, *turbatum*, *pyrenaicum*, *schneiderii*) (17)
Sericostoma personatum Spence, 1826 (*S. pedemontanum*, *memorable*)
(7, 22, 26, 27, 28, 35, 38, 40, 46, 50)
Notidobia ciliaris Linnaeus, 1761 (20, 38, 40)

BERAIDAE

- Beraea pullata* Curtis, 1834 (20, 27)
Beraea maura Curtis, 1834 (27)
Beraeodes minutus Linne, 1761 (17, 46)
Beraemyia schmidi Botosaneanu, 1960 (17)
Ernodes articularis Pictet, 1834 (*E. martynovi*) (17)

HELICOPSYCHIDAE

- Helicopsyche bacescui* Orghidan et Botosaneanu, 1957 (17)
Helicopsyche sperata Mac Lachlan (27)

ODONTOCERIDAE

- Odontocerum albicorne* Scopoli, 1763 (7, 17, 27, 35, 38, 40, 46, 50)
Odontocerum hellenicum Malicky, 1972 (20)

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