

LJUBLJANA, JULY 2000

Vol. 8, No. 1: 43-48

NEW RECORDS FOR THE CADDISFLY FAUNA OF SLOVENIA (INSECTA: TRICHOPTERA)

Gorazd URBANIČ¹, Ciril KRUŠNIK² and Mihael J. TOMAN¹

¹University of Ljubljana, Biotechnical faculty, Department of Biology, Večna pot 111, SI-1001 Ljubljana, Slovenia

²National Institute of Biology, Večna pot 111, SI-1001 Ljubljana, Slovenia

Abstract - The list of nine new records for Slovenian caddisfly fauna from the valley of the river Ščavnica is given. Adult caddisflies were caught using a sweeping net and a light-trap, whereas larvae were sorted from the benthic samples. Five species were identified in adult and larval stages while four species were identified only in the larval or adult stage. The number of recorded Slovenian Trichoptera species increased up to 216.

KEY WORDS: Trichoptera, fauna, river Ščavnica, Slovenia

Izvleček - NOVI PODATKI O FAVNI MLADOLETNIC V SLOVENIJI (INSECTA: TRICHOPTERA)

Devet novih vrst mladoletnic v favni Slovenije je bilo ulovljenih v dolini reke Ščavnice. Odrasle osebkje smo lovili z metuljnico in na svetlobno past, medtem ko smo ličinke dobili z vzorčenjem bentonske združbe. Pet vrst smo določili v stadiju imaga in v stadiju ličink, po dve vrsti pa le v stadiju ličink oziroma v stadiju imagov. Število vrst mladoletnic najdenih v Sloveniji je naraslo na 216.

KLJUČNE BESEDE: mladoletnice, favna, reka Ščavnica, Slovenija

Introduction

The first records of caddisflies in Slovenia were published by Johann Anton Scopoli in "Entomologia Carniolica" (1763). Later faunistic reports of Slovenian caddisfly fauna were mentioned in papers of different authors: Mc Lachlan (1874-80), Klapalek (1900), Radovanović (1933, 1935, 1953), Malicky (1979, 1990, 1999), Kos (1983, 1985), Dmitrović et al. (1984), Malicky et al. (1986) and Krušnik (1984, 1987, 1990, 1991, 1992, 1996). Together, 207 caddisfly species were mentioned for Slovenian fauna.

Study area

The River Ščavnica, tributary to the river Mura, is a 50 km long lowland river draining waters from the impermeable marls and sandy clays of the Slovenske Gorice and the Ljutomerske Gorice (Fig 1). The stream originates from small springs on the northern edge of the hills Slovenske Gorice (NE Slovenia), at an altitude of 330 m. A spring basin is located in the forested area, but downstream, the river flows through an agricultural area. In the upper part the river has natural characteristics with a meandering channel pattern, wooded riparian vegetation and is classified as I.-II. class according to the saprobic system. Downstream from the village Spodnja Ščavnica the river is regulated with a reservoir at the village Gajševci. Riparian vegetation is herbal and is regularly cut. Downstream the town Ljutomer severe pollution is present and the river is classified as polysaprobic level (IV quality class) (Pirc-Velkavrh, 1998).

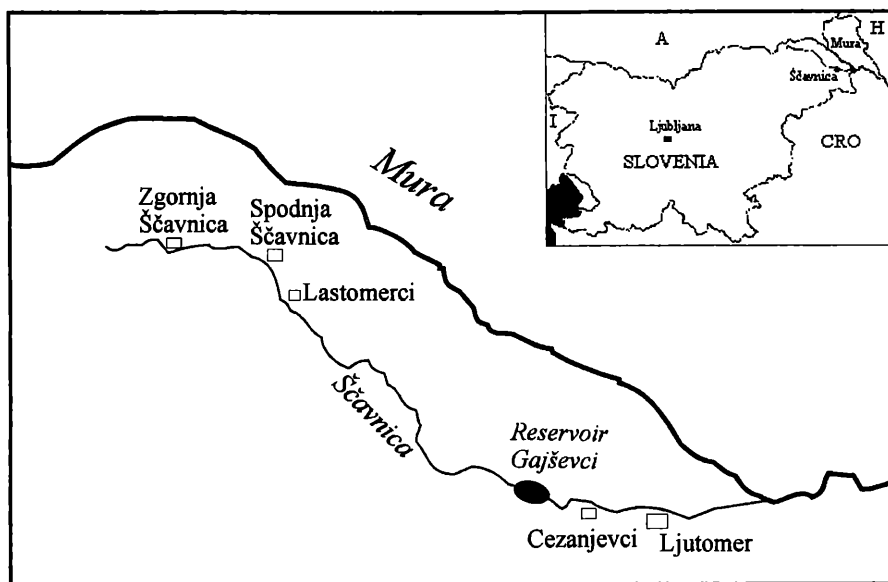


Fig. 1: Sketch of the study area.

Material and Methods

Adult caddisflies were collected with a sweeping-net or light-trap. The specimens were preserved in 70% ethanol in the field and identified in the laboratory using a Leica MS5 stereomicroscope (Leica AG, Switzerland). Adult caddisflies were determined according to Malicky (1983) and Pitsch (1993a). Benthic samples were collected by a Surber sampler. All macroinvertebrates were preserved in 4% formaldehyde solution. Caddisfly larvae were sorted from the samples, identified under a Leica MS5 stereomicroscope (Leica AG, Switzerland), and preserved in 70% ethanol. "Atlas der Österreichischen Köcherfliegen" (Waringer & Graf, 1997), was used for larval determination. Data on the distribution of listed species in Europe were taken from Botosaneanu & Malicky (1978) and Pitsch (1993b).

Results and discussion

Studies on caddisfly fauna in the Valley of the River Ščavnica recorded nine species new to the fauna of Slovenia. Five species were caught in adult and larval stages. Specimens of *Hydroptila lotensis* Mosely, 1930, and *Setodes punctatus* (Fabricius, 1793) were caught only in the adult stage by a light-trap. This indicates that these species probably do not live in the River Ščavnica, but they flew to the light-trap from other water habitats. It is known that adult caddisflies can fly more than 10 km from their emerging place (Malicky, 1987). The species *Hydropsyche modesta* Navas, 1925, and *Isonychia dubia* (Stephens, 1873) were determined on larval specimens. Larvae of both species, in the final larval instar, are easily recognisable for proper determination (Pitsch, 1993a).

Hydroptilidae

1. *Orthotrichia angustella* (McLachlan 1865)

Distribution: widespread in Europe

Cezanjevci, WM85, 29.4. 1999, larvae; 28.5. 1999, 1♂, 1♀, pupae; 25.6. 1999, pupae; 30.7. 1999, 2♂, 1♀

2. *Hydroptila lotensis* Mosely 1930

Distribution: widespread in Europe

Zgornja Ščavnica, WM66, 1.7. 1999 (light-trap), 1♂

Hydropsychidae

3. *Hydropsyche siltalai* Döhler 1963

Distribution: widespread in Europe

Zgornja Ščavnica, WM66, 1.7. 1999 (light-trap), 1♂; Lastomerci, WM76, 15.1. 1999, larvae; 1.3. 1999, larvae; 2.4. 1999, larvae; 29.4. 1999, larvae; 28.5. 1999, larvae and pupae; 12.6. 1999 (light-trap), 1♂; 25.6. 1999, 1♂, larvae; Cezanjevci, WM 85, 2.4. 1999, larvae; 29.4. 1999, larvae, 28.5. 1999, larvae and pupae.

4. *Hydropsyche incognita* Pitsch 1993

Distribution: widespread in Europe

Plitvički potok, WM77, 4.6. 1998 1♂; Zgornja Ščavnica, WM66, 1.7. 1999 (light-trap), 2♂; Cezanjevc, WM 85, 25.6. 1999, larvae.

5. *Hydropsyche modesta* Navas 1925

Distribution: south-eastern Europe and Pannonian lowland

Cezanjevc, WM 85, 28.5. 1999, larvae; 25.6. 1999, larvae.

Limnephilidae

6. *Ironoquia dubia* (Stephens 1873)

Distribution: widespread in Europe

Lastomer, WM76, 2.4. 1999, larvae.

7. *Potamophylax rotundipennis* (Brauer 1834)

Distribution: widespread in Europe

Zgornja Ščavnica, WM 66, 15. 10. 1998, larvae; 1.12. 1998, larvae; 15.1. 1999, larvae; 1.3. 1999, larvae; 2.4. 1999, larvae; 29.4. 1999, larvae; 25.6. 1999, larvae; 1.7. 1999 (light-trap): 3♂, 1♀; 8.9. 1999 (light-trap), 1♂; Lastomer, WM 76, 1.12. 1998, larvae; 15.1. 1999, larvae; 1.3. 1999, larvae; 29.4. 1999, larvae; 27.5. 1999, larvae; 25.6. 1999, larvae; Cezanjevc, WM85, 2.4. 1999, larvae; 28.5. 1999, larvae.

Goeridae

8. *Lithax obscurus* Hagen (1859)

Distribution: central and south-eastern Europe

Zgornja Ščavnica, WM66, 15.10. 1998, larvae; 1.12. 1998, larvae; 15.1. 1999, larvae; 1.3. 1999, larvae and pupae, 2.4. 1999, larvae and pupae; 29.4. 1999, 78♂, 20♀, pupae, larvae; 17.5. 1999, 1♂; 28.5. 1999, 1♂; 25.6. 1999, larvae.

Leptoceridae

9. *Setodes punctatus* (Fabricius 1793)

Distribution: widespread in Europe

Zgornja Ščavnica, WM66, 1.7. 1999 (light-trap), 1♂

The genus *Orthotrichia* with the species *Orthotrichia angustella* is the first record in Slovenia. In Hungary it is included in the List of Protected and Threatened Caddisflies (Nogradi and Uherkovich, 1999), while in Austria it has not been found yet (Malicky, 1999). Despite the wide areas of distribution of *Hydroptila lotensis*, *Lithax obscurus* and *Setodes punctatus* in Europe, they were found in Austria only in the area of the Pannonian lowland (Malicky 1999) and the same distribution is expected also for Slovenia. *Hydropsyche siltalai* and *Potamophylax rotundipennis* are widely distributed in Austria. Radovanovič (1933) mentioned findings of larvae of *Potamophylax rotundipennis* in the streams at the hill Rožnik in Ljubljana, however the species of the genus *Potamophylax* are difficult to identify at the larval stage (Higler and Solem, 1986). The adult specimens of mentioned species have not been found there yet. *Hydropsyche incognita* has been a new species in the European fauna since 1993 (Pitsch, 1993b). Adult specimens are very similar to the specimens of *Hydropsyche pellucidula* Curtis, but the larvae of both species can be distinguished. According to the habitat prefer-

ence in Europe (Pitsch 1993b) *H. incognita* could be found in streams all over Slovenia. In previous studies *H. incognita* was overlooked in Slovenia, and was probably mentioned together with specimens of species *H. pellucidula*. A revision is needed for the appropriate determination of specimens of *Hydropsyche pellucidula*-group and their distribution in Slovenia.

The number of new caddisfly records for Slovenia in the Ščavnica Valley would be higher if the River Ščavnica would not be so severely polluted in its lower part. However, eastern Slovenia is not well investigated and we can expect more new caddisfly records for Slovenian fauna.

Acknowledgement

We thank Al Vrezec for his help at catching caddisflies with the light-trap.

References

- Botosaneanu L., Malicky H.**, 1978: Trichoptera. In: Illies J. (ed.): Limnofauna Europaea, 2. Auflage, Gustav Fischer Verlag Stuttgart New York Sweets & Zeitlinger - Amsterdam, pp. 333-359.
- Dmitrović T., Fakin M., Pavšer M., Krušnik C., Kos I.**, 1984: Entomološke raziskave na mladinskem raziskovalnem taboru Makole 84, Zveza organizacij za tehnično kulturo Slovenije, Ljubljana, 35-47.
- Higler, L. W. G., Solem, J. O.**, 1986: Key to the larvae of North-West European Potamophylax Species (Trichoptera, Limnephilidae) with Notes on Their Biology. *Aquatic insects*, 8: 159-169.
- Klapalek F.**, 1900: Prispevek ku znalosti Neuropteroid z Krajiny a Korutan. *Rozpravy Česke Akademie Cisare Františka Josefa pro vedy, slovesnost a umeni*, 9(2, 14): 1-12.
- Kos I.**, 1983: Mladoletnice (Insecta, Trichoptera) v Zgornji Savinjski dolini. Študentski raziskovalni tabor Zgornja Savinjska dolina, Luče, Zbornik poročil delovnih skupin, Ljubljana, 54-60.
- Kos I.**, 1985: Prostorska in ekološka razširjenost mladoletnic (Trichoptera) okolice Ribnice. Dipl. naloga, Ljubljana, 44s.
- Krušnik C.**, 1984: Mladoletnice (Insecta, Trichoptera) Triglavskega narodnega parka. *Biol. Vestn.*, 32 (1): 37-44.
- Krušnik C.**, 1987: Prispevek k poznavanju favne mladoletnic (Insecta, Trichoptera) Pohorja. *Biol. Vestn.*, 35 (2): 47-60.
- Krušnik C.**, 1990: Nove vrste mladoletnic (Insecta, Trichoptera) za favno Slovenije. *Biol. Vestn.*, 38 (2): 39-44.
- Krušnik C.**, 1991: Prispevek k poznavanju mladoletnic (Insecta, Trichoptera) jugozahodnega roba krasa. *Biol. Vestn.*, 39 (3): 11-20.
- Krušnik, C.**, 1992: Rdeči seznam ogroženih mladoletnic (Insecta, Trichoptera) v Sloveniji. *Varstvo narave*, 17: 105-108.
- Krušnik, C.**, 1996: Pregled raziskanosti in stanja favne mladoletnic (Insecta, Trichoptera). In: Gregori, J. (ed.): Narava Slovenije, stanje in perspektive: Zbornik

- prispevkov o naravni dediščini Slovenije, Društvo ekologov Slovenije, Ljubljana, s 297-301.
- Malicky H.**, 1979: Revision der Köcherfliegensammlung von Pater Gabriel Strobl im Naturhistorischen Museum Admont. *Mitt. Abt. Zool. Landesmus. Joanneum*, 8: 11-42
- Malicky H.**, 1983: Atlas of European Trichoptera. Series entomologica, v. 24, Dr. Junk Publishers, The Hague - Boston - London, X+298pp.
- Malicky H.**, 1987: Anflugdistanz und Fallenfangbarkeit von Köcherfliegen (Trichoptera) bei Lichtfallen. *Jber. Biol. Stn. Lunz*, 10: 140-157.
- Malicky H.**, 1990: Revision der Gattung *Melampophylax* Schmid, 1955 (Trichoptera, Limnephilidae). *NachrBl. bayer. Ent.*, 39 (1): 1-12.
- Malicky H.**, 1999: Eine aktualisierte Liste der österreichischen Köcherfliegen (Trichoptera). *Braueria*, 26: 31-40.
- Malicky H., Krušnik C., Moretti G., Nogradi S.**, 1986: Ein Beitrag zur Kenntnis der *Chaetopteryx rugulosa* Kolenati, 1848 - Gruppe (Trichoptera, Limnephilidae). *Entomofauna*, 7: 1-27
- McLachlan R.**, 1784-1880: A monographic revision and the synopsis of the Trichoptera of the European fauna. Reprint 1968, Hampton: Classey, 523pp.+LXXXIV
- Nogradi, U. S., Uherkovich, A.**, 1999: Protected and threatened caddisflies (Trichoptera) of Hungary. Proceedings of the 9th International Symposium on Trichoptera: 291-297. Faculty of Science, University of Chiang Mai, Thailand.
- Pirc-Velkavrh, A. (ed.)**, 1998: Okolje v Sloveniji 1996. Republika Slovenija, Ministrstvo za okolje in prostor, Uprava Republike Slovenije za varstvo narave, Ljubljana.
- Pitsch, T.**, 1993a: Zur Larvaltaxonomie, Faunistik und Ökologie mitteleuropäischen Fließwasser-Köcherfliegen (Insecta: Trichoptera). Landwirtschaftsentwicklung und Umweltforschung-Schriftenreihe des Fachbereichs Landschaftsentwicklung-Sonderheft S8, 316 s., Technische Universität Berlin.
- Pitsch, T.**, 1993b: Zur Kenntnis der Hydropsyche pellucidula-Gruppe in Mitteleuropa (Trichoptera: Hydropsychidae). *Braueria*, 20: 27-32.
- Radovanović M.**, 1933: Trioptere Slovenije. *Prirodoslovne razprave*, 2: 112-124.
- Radovanović M.**, 1935: Trioptere Jugoslavije. *Glasnik Zem. Muz. Bosn. Herceg.*, 47: 73- 84.
- Radovanović M.**, 1953: Prilog poznavanju trioptera balkanskog poluostrva, prvenstveno u pećinama i planinskim jezerima. *Glas SAN CCX Odeljenje prirodno mat. Nauka*, 7: 11-39.
- Scopoli J. A.**, 1763: Entomologia Carniolica exhibens Insecta Carnioliae indigena et distributa in ordines, genera, species, varietas, methodo Linneana, Trattner, Vindobonae.
- Urbanič G.**, 1999: Taksonomske in ekološke značilnosti združbe mladoletnic (Insecta, Trichoptera) v reki Ščavnici. Dipl. naloga, Ljubljana, 69s.
- Waringer, J., Graf, W.**, 1997: Atlas der österreichischen Köcherfliegenlarven unter Einschluss der angrenzende Gebiete. Facultas-Universitätsverlag, Wien, 286 s.

Received / Prejeto: 4. 4. 2000