

Records of caddisfly larvae (Trichoptera) from the Kerca stream

KRISTÓF MÁLNÁS, EMESE SZITTA, PÉTER JUHÁSZ, ZOLTÁN MÜLLER & BÉLA KISS

ABSTRACT: A three years long quantitative macrozoobenthos survey was carried out on the section of the Kerca stream near Kercaszomor. Between 2008 and 2010 altogether 29 caddisfly (Trichoptera) species were collected from 4 sites on the Kerca stream. Among the identified species, larvae of rare caddisflies were detected such as *Polycentropus irroratus*, *Adicella reducta*, *Leptocerus interruptus*, and *Oecetis testacea*.

Introduction

A quantitative survey were carried out on the macrozoobenthos community in four sections of the Kerca stream near Kercaszomor. The caddisfly faunistical results of the first year of the four-year long survey were already published by SZITTA et al. (2009), now we present the rest of the results of the survey from the years 2008–2010. The caddisfly fauna of the area is already well known, but most of the data were collected by light trap (UJHELYI 1978, 1981, UHERKOVICH & NÓGRÁDI 1992, 1998, NÓGRÁDI & UHERKOVICH 2002, UHERKOVICH 2004). There are scarce data of larvae from certain river sections (MÓRA et al. 2006, SZITTA et al. 2009).

Material and methods

The Q_{BAP} multihabitat sampling process following the Sampling Protocol of the Hungarian National Biodiversity Monitoring Programme (www.termeszetvedelem.hu) was used. Altogether 4 sites were designated for the survey (Table 1), and one sampling were carried out in April every year from 2007 to 2010. The caddisfly specimens collected were preserved in 70% ethanol. For identification of the larvae the keys by WARINGER & GRAF (1997) and WALLACE et al. (2003) were used. Specimens collected in 2008 and 2009 were identified by Emese SZITTA, the further ones were identified by Kristóf MÁLNÁS. We followed the nomenclature by GRAF et al. (2008).

Table 1. Data of the sampling sites

Code	Stream	Site name	Administrative area	WGS 84 coordinates N	WGS 84 coordinates E
KER_017	Kerca	Malom-rét	Kercaszomor	46,78817°	16,36986°
KER_574	Kerca	Szomoróc	Kercaszomor	46,78149°	16,32327°
KER_857	Kerca		Kercaszomor	46,78199°	16,31561°
KER_858	Kerca	Nagy-rét	Kercaszomor	46,78171°	16,32918°

Results

From 2008 to 2010, altogether 29 caddisfly species were identified from the investigated section of the Kerca stream. Thereinafter 128 data of the collected caddisflies are presented from the 4 study sites of the Kerca stream. Abbreviations (number of data collections): JP = Péter Juhász (70), KB = Béla Kiss (14), MK = Kristóf Málnás (44).

HYDROPSYCHIDAE Curtis, 1825

Hydropsyche angustipennis (Curtis, 1834) – KER_017: 2008.04.18., 1, KB.

Hydropsyche bulbifera McLachlan, 1878 – KER_574: 2010.04.29., 1, MK; KER_857: 2009.04.21., 3, JP; KER_857: 2008.04.19., 2, JP; KER_858: 2009.04.21., 3, JP.

Hydropsyche fulvipes (Curtis, 1834) – KER_858: 2009.04.21., 1, JP.

Hydropsyche saxonica McLachlan, 1884 – KER_017: 2008.04.18., 2, KB; KER_017: 2009.04.21., 1, JP; KER_574: 2009.04.21., 2, JP; KER_574: 2008.04.18., 2, JP; KER_574: 2010.04.29., 10, MK; KER_857: 2009.04.21., 9, JP; KER_857: 2010.04.30., 4, MK; KER_857: 2008.04.19., 9, JP; KER_858: 2010.04.29., 110, MK; KER_858: 2009.04.21., 16, JP; KER_858: 2008.04.19., 4, JP.

POLYCENTROPODIDAE Ulmer, 1903

Cyrnus trimaculatus (Curtis, 1834) – KER_017: 2008.04.18., 6, KB; KER_017: 2010.04.29., 5, MK.

Plectrocnemia conspersa (Curtis, 1834) – KER_017: 2008.04.18., 29, KB; KER_017: 2009.04.21., 1, JP; KER_574: 2008.04.18., 3, JP; KER_574: 2009.04.21., 1, JP; KER_858: 2008.04.19., 2, JP; KER_858: 2009.04.21., 1, JP.

Polycentropus irroratus Curtis, 1834 – KER_017: 2010.04.29., 21, MK; KER_574: 2010.04.29., 4, MK.

PSYCHOMYIDAE Walker, 1852

Lype reducta (Hagen, 1868) – KER_858: 2010.04.29., 1, MK.

LIMNephILIDAE Kolenati, 1848

Anabolia furcata Brauer, 1857 – KER_017: 2008.04.18., 23, KB; KER_017: 2009.04.21., 22, JP; KER_017: 2010.04.29., 36, MK; KER_574: 2009.04.21., 6, JP; KER_574: 2008.04.18., 8, JP; KER_574: 2010.04.29., 10, MK; KER_857: 2009.04.21., 1, JP; KER_857: 2010.04.30., 36, MK; KER_858: 2008.04.19., 1, JP; KER_858: 2009.04.21., 2, JP; KER_858: 2010.04.29., 44, MK.

Halesus digitatus (Schränk, 1781) – KER_017: 2010.04.29., 8, MK; KER_017: 2009.04.21., 23, JP; KER_574: 2010.04.29., 2, MK; KER_857: 2008.04.19., 2, JP; KER_857: 2009.04.21., 9, JP; KER_858: 2009.04.21., 4, JP; KER_858: 2010.04.29., 6, MK.

Halesus tessellatus (Rambur, 1842) – KER_017: 2008.04.18., 13, KB; KER_017: 2010.04.29., 36, MK; KER_017: 2009.04.21., 4, JP; KER_574: 2010.04.29., 8, MK; KER_574: 2008.04.18., 1, JP; KER_574: 2009.04.21., 6, JP; KER_857: 2009.04.21., 5, JP; KER_857: 2008.04.19., 8, JP; KER_858: 2008.04.19., 87, JP; KER_858: 2010.04.29., 24, MK; KER_858: 2009.04.21., 3, JP.

Ironoquia dubia (Stephens, 1837) – KER_017: 2009.04.21., 1, JP; KER_574: 2008.04.18., 1, JP; KER_857: 2010.04.30., 1, MK; KER_857: 2008.04.19., 10, JP; KER_858: 2008.04.19., 6, JP; KER_858: 2010.04.29., 2, MK.

Limnephilus affinis Curtis, 1834 – KER_858: 2008.04.19., 1, JP.

Limnephilus flavicornis (Fabricius, 1787) – KER_017: 2009.04.21., 1, JP.

Limnephilus lunatus Curtis, 1834 – KER_017: 2010.04.29., 3, MK; KER_857: 2009.04.21., 1, JP; KER_857: 2008.04.19., 26, JP.

Limnephilus rhombicus (Linnaeus, 1758) – KER_574: 2009.04.21., 1, JP; KER_857: 2009.04.21., 3, JP; KER_857: 2008.04.19., 4, JP; KER_857: 2010.04.30., 7, MK; KER_858: 2009.04.21., 1, JP; KER_858: 2010.04.29., 3, MK.

Potamophylax nigricornis (Pictet, 1834) – KER_017: 2009.04.21., 4, JP; KER_017: 2008.04.18., 2, KB; KER_574: 2010.04.29., 12, MK; KER_574: 2008.04.18., 54, JP; KER_574: 2009.04.21., 29, JP; KER_857:

2009.04.21., 119, JP; KER_857: 2008.04.19., 6, JP; KER_858: 2008.04.19., 97, JP; KER_858: 2009.04.21., 97, JP.
Potamophylax rotundipennis (Brauer, 1857) – KER_017: 2010.04.29., 8, MK; KER_574: 2010.04.29., 10, MK; KER_574: 2009.04.21., 54, JP; KER_574: 2008.04.18., 5, JP; KER_857: 2008.04.19., 26, JP; KER_857: 2009.04.21., 20, JP; KER_857: 2010.04.30., 246, MK; KER_858: 2010.04.29., 125, MK; KER_858: 2009.04.21., 83, JP; KER_858: 2008.04.19., 81, JP.

GOERIDAE Ulmer, 1903

Goera pilosa (Fabricius, 1775) – KER_574: 2010.04.29., 2, MK.

Silo pallipes (Fabricius, 1781) – KER_017: 2008.04.18., 16, KB; KER_017: 2010.04.29., 26, MK; KER_017: 2009.04.21., 1, JP; KER_574: 2010.04.29., 5, MK; KER_574: 2009.04.21., 2, JP; KER_858: 2008.04.19., 1, JP; KER_858: 2010.04.29., 32, MK.

LEPTOCERIDAE Leach, 1815

Adicella reducta (McLachlan, 1865) – KER_017: 2010.04.29., 3, MK; KER_017: 2008.04.18., 1, KB; KER_574: 2008.04.18., 1, JP.

Athripsodes albifrons (Linnaeus, 1758) – KER_574: 2008.04.18., 1, JP; KER_858: 2008.04.19., 1, JP.

Athripsodes bilineatus (Linnaeus, 1758) – KER_017: 2010.04.29., 24, MK; KER_017: 2009.04.21., 1, JP; KER_017: 2008.04.18., 36, KB; KER_574: 2010.04.29., 20, MK; KER_574: 2009.04.21., 1, JP; KER_574: 2008.04.18., 2, JP; KER_857: 2010.04.30., 18, MK; KER_858: 2009.04.21., 6, JP; KER_858: 2010.04.29., 79, MK; KER_858: 2008.04.19., 9, JP.

Leptocerus interruptus (Fabricius, 1775) – KER_017: 2010.04.29., 81, MK.

Leptocerus tineiformis Curtis, 1834 – KER_017: 2008.04.18., 149, KB.

Mystacides azureus (Linnaeus, 1761) – KER_017: 2010.04.29., 8, MK; KER_017: 2008.04.18., 1, KB; KER_574: 2010.04.29., 2, MK; KER_857: 2010.04.30., 1, MK; KER_858: 2010.04.29., 2, MK.

Mystacides niger (Linnaeus, 1758) – KER_017: 2008.04.18., 4, KB.

Oecetis testacea (Curtis, 1834) – KER_017: 2008.04.18., 1, KB; KER_017: 2010.04.29., 15, MK; KER_574: 2008.04.18., 1, JP.

SERICOSTOMATIDAE McLachlan, 1876

Notidobia ciliaris (Linnaeus, 1761) – KER_017: 2010.04.29., 1, MK.

Discussion

Most of the caddisfly species found were already known in the area based on light trap samples (UJHELYI 1978, 1981, UHERKOVICH & NÓGRÁDI 1992, 1998, UHERKOVICH 2004), or former macrozoobenthos surveys (MÓRA et al. 2006, SZITTA et al. 2009). Among the species found only *Notidobia ciliaris* is proved to be new to the region. However, larvae of caddisflies which are quite rare in Hungary have turned up through the survey. These are *Adicella reducta*, *Leptocerus interruptus*, *Oecetis testacea*, and *Polycentropus irroratus*. Despite these records, the caddisfly fauna is already well revealed, and these rare species have only a few larval records from Hungary.

Adicella reducta (McLachlan, 1865): Only a few records are known from Hungary. The first imagos were reported from Aszófő by UJHELYI (1971), and later by UHERKOVICH (2004) from the Kerca stream, near Kercaszomor. The first larvae of *A. reducta* were found in the river Zala near Csöde by SZIVÁK & MÓRA (2009). The specimen we collected was found in about the same section of the Kerca where UHERKOVICH (2004) reported it, but this is the second larval record of the species from Hungary. NÓGRÁDI & UHERKOVICH (1999) consider the

species among the endangered Hungarian caddisflies. The larvae of *A. reducta* occur among the macrovegetation or roots (xylal) (WALLACE et al. 2003) on the metarhithral-epipotamal sections of running water or in standing water as well. The larvae regarded as shredders and grazers, and demand oligosaprobic, B-mesosaprobic water (GRAF et al. 2002, 2008). The species is widespread in Europe, principally in submontane, collinal running water bodies (GRAF et al. 2008).

Leptocerus interruptus (Fabricius, 1775): *L. interruptus* has only some imago data (UJHELYI 1971) from the Danube Bend. Due to the lack of records NÓGRÁDI & UHERKOVICH (1999) consider it as an “extinct or vanished” species. KISS et al. (1999) reported its occurrence near Szarvaskő, and later it was also found from the Kerca stream (UHERKOVICH 2004). All Hungarian records of the species originate from light trap samples, thus the present record is proved to be the first larval datum of *L. interruptus* in Hungary. The high number of the larvae in the Kerca stream suggests that the population is stable. *L. interruptus* colonises the littoral region on the hyporhithral-metapotamal sections of collinal rivers. It occurs in lowland rivers as well. The larvae are regarded as shredders and grazers, and are found among the macrovegetation (GRAF et al. 2002, 2008).

Oecetis testacea (Curtis, 1834): Previous data of the species arose from light trap samplings near Magyarszombatfa (NÓGRÁDI 1985, UHERKOVICH & NÓGRÁDI 1992) and Bernecebaráti (KISS & SCHMERA 1999). These records are discussed in details by SCHMERA (2000). Imagos of *Oecetis testacea* were found near the Kerca and Kerka in 2002 and 2003 (UHERKOVICH 2006). The first larval data of *O. testacea* were reported by MÓRA et al. (2006) from the Kemence stream near Bernecebaráti, and the Toka stream near Gyöngyösoroszi. *O. testacea* was mentioned by NÓGRÁDI & UHERKOVICH (1999) among the endangered Hungarian caddisflies. There were no former larval record of the species in the region. *O. testacea* is characteristic to the metarhithral-hiporhithral sections of collinal or planal streams. The larvae are found on the microlithal-macrolithal sediment, but it usually occurs on the xylal on the littoral zone of streams as well. The larvae are regarded as predators (GRAF et al. 2008).

Polycentropus irroratus Curtis, 1834: *P. irroratus* proved to be rare in Hungary with a sporadic distribution. It has imago data from the Zemplén (OLÁH 1967), Bükk (ANDRIKOVICS et al. 2005), Bakony (UHERKOVICH & NÓGRÁDI 2006), and Mecsek (NÓGRÁDI 1987) mountains, and along the Marcal (UHERKOVICH & NÓGRÁDI 1988), Kerka (UHERKOVICH & NÓGRÁDI 1992), Dráva (UHERKOVICH & NÓGRÁDI 1998), Mosoni-Duna (UHERKOVICH & NÓGRÁDI 2001), Kerka and Kerca rivers and streams (UHERKOVICH 2004). Furthermore, the larvae of the species were found in the Tisza, in Tarján stream, and in the Kerca stream as well (SZITTA et al. 2009). Thus the species was already known from our area. *P. irroratus* is found in the metarhithral-epipotamal sections of collinal or planal running water. The larvae demand solid substrate, occur on the micro- and macrolithal and xylal sediment respectively. Sometimes their net is found among the macrovegetation or among the particulated organic material (GRAF et al. 2008).

Acknowledgement: We'd like to express thanks for the support of the Őrség National Park during the survey.

References

- ANDRIKOVICS S., KISS O. & NAGY B. (2005): Hosszú és rövid periódusú változásokról a Szalajka-patak gerinctelen makrofauna közösségeiben (Bükk Hegység, Magyarország). [Short and longterm changes in the macrozoobenthic communities of the Szalajka-stream (Bükk mountains, Hungary).] – *Acta Biologica Debrecina, Supplementum Oecologica Hungarica*, 13: 9–19.
- GRAF, W., GRASSER, U. & WARINGER, J. (2002): Trichoptera. Part III. – In: MOOG, O. (ed.) (2002): *Fauna Aquatica Austriaca*. – Wasserwirtschaftskataster, Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft, Wien, 42 pp.
- GRAF, W., MURPHY, J., DAHL, J., ZAMORA-MUÑOZ, C. & LÓPEZ-RODRÍGUEZ, M. J. (2008): Trichoptera. – In: SCHMIDT-KLOIBER, A. & HERING, D. (eds): *Distribution and Ecological Preferences of European Freshwater Organisms*. Vol. 1. Pensoft Publishers, Sofia-Moscow, 388 pp.
- KISS, O. & SCHMERA, D. (1999): Trichoptera from a light trap in the Börzsöny Mountains, Northern Hungary, 1996. – In: MALICKY, H. & CHANTARAMONGKOL, P. (eds): *Proceedings of the 9th International Symposium on Trichoptera*. The Hague, pp. 171–174.
- KISS, O., ANDRIKOVICS S., SZIGETVÁRI, G. & FISLI, I. (1999): Trichoptera from a light trap near the Eger brook at Szarvaskő (Bükk Mountains, North Hungary). – In: MALICKY, H. & CHANTARAMONGKOL, P. (eds): *Proceedings of the 9th International Symposium on Trichoptera*. The Hague, pp. 165–170.
- MÓRA, A., JUHÁSZ, P., KISS, B. & MÜLLER, Z. (2006): Faunistical results of the Trichoptera investigations carried out in the frames of the ecological survey of the surface waters of Hungary (ECOSURV) in 2005. – *Folia historico-naturalia Musei Matraensis*, 30: 359–367.
- NÓGRÁDI, S. (1987): Caddisflies of the Eastern Mecsek Mountains, Hungary (Trichoptera). – *A Janus Pannonius Múzeum Évkönyve*, 30–31(1985–86): 11–21.
- NÓGRÁDI, S. & UHERKOVICH, Á. (1985): A Bakony hegység és környéke tegzesfaunája I. (Trichoptera). (Caddisfly fauna of the Bakony Mountains and environs, I. (Trichoptera).) – *Folia Musei Historico-naturalis Bakonyiensis*, 4: 107–128.
- NÓGRÁDI, S. & UHERKOVICH, Á. (1999): Protected and threatened caddisflies (Trichoptera) of Hungary. – In: MALICKY, H. & CHANTARAMONGKOL, P. (eds): *Proceedings of the 9th International Symposium on Trichoptera*. Chiang Mai University, The Hague, pp. 291–297.
- NÓGRÁDI, S. & UHERKOVICH, Á. (2002): On the caddisflies (Trichoptera) from the catchment area of the rivers Mura and Kerka, Southwest Hungary. – *Somogyi Múzeumok Közleményei*, 15: 129–144.
- OLÁH, J. (1967): Untersuchungen über die Trichopteren eines Bachsystems der Karpaten. (Neue Erklärung des Mosaikmuster – “mosaic pattern” – prinzipts in Flusswasser-Tiergemeinschaften). – *Acta Biologica Debrecina, Supplementum Oecologica Hungarica*, 5: 71–91.
- SCHMERA D. (2000): Az Oecetis testacea Curtis, 1834 (Insecta: Trichoptera) előfordulása Magyarországon. – *Folia historico-naturalia Musei Matraensis*, 24: 127–128.
- SZITTA, E., JUHÁSZ, P., KISS, B. & MÜLLER, Z. (2009): Contribution to the Hungarian caddisfly. (Trichoptera) fauna, based on the nationwide surveys in 2007. – *Folia historico-naturalia Musei Matraensis*, 33: 205–210.
- SZIVÁK, I. & MÓRA, A. (2009): Occurrence of rare caddisfly (Trichoptera) species at the catchment area of Lake Balaton. – *Acta Biologica Debrecina, Supplementum Oecologica Hungarica*, 20: 219–230.
- UHERKOVICH, Á. (2004): Further studies on the caddisflies (Trichoptera) of the water system of rivers Mura and Kerka, Southwest Hungary. – *Folia historico-naturalia Musei Matraensis*, 28: 187–194.
- UHERKOVICH, Á. & NÓGRÁDI, S. (1988): The Trichoptera of the Bakony Mountains and environs II. (Hungary). – *Folia Musei Historico-naturalis Bakonyiensis*, 7: 35–48.
- UHERKOVICH, Á. & NÓGRÁDI, S. (1992): The Trichoptera fauna of Magyarszombatfa, West Hungary. – *A Janus Pannonius Múzeum Évkönyve*, 36 (1991): 13–30.
- UHERKOVICH, Á. & NÓGRÁDI, S. (1998): The caddisfly (Trichoptera) fauna of the Sztalmár–Bereg Plain, Northeast Hungary. – *A Janus Pannonius Múzeum Évkönyve*, 41–42 (1996–1997): 49–62.
- UHERKOVICH, Á. & NÓGRÁDI, S. (2001): The Trichoptera of the Szigetköz, upper Hungarian Danube Region (Northwest Hungary), I. Compendium of the faunistical researches. – *Folia historico-naturalia Musei Matraensis*, 25: 91–110.
- UHERKOVICH, Á. & NÓGRÁDI, S. (2006): Caddisflies (Trichoptera) of the Mecsek Mountains, South Hungary. – *Natura Somogyiensis*, 9: 289–304.

- UJHELYI S. (1971): Adatok a Leptoceridae (Trichoptera) család fajainak magyarországi elterjedéséhez. [Data to the distribution of Leptoceridae (Trichoptera) in Hungary.] – *Folia entomologica hungarica*, 24: 119–137.
- UJHELYI S. (1978): Adatok az Alpokalja szitakötő-, álkérész és tegzes faunájához. [Data to the dragonfly-, stonefly-, and caddisfly fauna of the Alpokalja district.] – *Savaria, a Vas megyei Múzeumok Értessítője*, 11–12(1977–78): 57–65.
- UJHELYI S. (1981): Adatok néhány rovarrendnek az Alpokalja területén való előfordulásához. [Occurrence date of some insect order on the Alpokalja district.] – *Az Alpokalja természeti képe*, 1: 85–87.
- WALLACE, I. D., WALLACE, B. & PHILIPSON, G. N. (2003): Keys to the case-bearing caddis larvae of Britain and Ireland. – *Scientific Publication of the Freshwater Biological Association*, 61: 1–259.
- WARINGER, J. & GRAF, W. (1997): *Atlas der österreichischen Köcherfliegenlarven: unter Einschluss der angrenzenden Gebiete.* – *Facultas Universitäts Verlag, Wien*, 286 pp.
- http://www.termeszetvedelem.hu/_user/downloads/mintavetel/makrozoo_protokoll_uj_080218.pdf

Kristóf MÁLNÁS

Péter JUHÁSZ

Zoltán MÜLLER

Béla KISS

Bioaqua Pro Ltd.

Soó Rezső u. 21.

H-4032 DEBRECEN, Hungary

E-mails: Malnas.Kristof@bioaquapro.hu, juhaszp@bioaquapro.hu,

mullerz@bioaquapro.hu, bkiss@bioaquapro.hu

Emese SZITTA

H-3413 CSERÉPFALU, Hungary

Bethlen Gábor u. 13.

E-mail: emese.szitta@gmail.com