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Data to the distribution of Oligoneuriella larvae in Hungary (Ephemeroptera: Oligoneuriidae)

T. Kovács, A. Ambrus and K. Bánkuti

Data to the distribution of Oligoneuriella larvae in Hungary (Ephemeroptera: Oligoneuriidae) — Collecting data of larvae of four species of *Oligoneuriella* are listed and depicted in UTM maps. Literature data of adults are revised. A key to the identification of larvae is given. *Oligoneuriella keffermuellerae* and *Oligoneuriella polonica* are new to Hungary.

INTRODUCTION

This paper presents the results of investigations on four *Oligoneuriella* species recorded from Hungary. It is based on 557 collectings of larvae carried out between 4th August, 1994 and 28th November, 1998 in 407 localities. The larval material is preserved in 70% ethanol and deposited in the Mátra Museum (Gyöngyös). The adults studied by the authors are housed in the Department of Zoology, Hungarian Natural History Museum (HNHM) (Budapest). As for information about the areas investigated, methods of collecting and presentation of data see Kovács *et al.* (1998).

RESULTS

Oligoneuriella keffermuellerae Sowa, 1973

Known distribution — It has been recorded from Poland (Keffermüller 1964, sub nom. *mikulskii,* cf. Sowa 1973) and Lithuania (Kluge 1997).

New records of larvae — Körmend: 86-os út, Rába, XN20, 19.06.1997, 3, A. Ambrus, K. Bánkuti, T. Kovács; Molnaszecsőd: döröskei út, Rába, XN21, 18.08.1998, 1, A. Ambrus, T. Kovács; Rábahídvég: 8-as út, Rába XN31, 18.08.1998, 2, A. Ambrus, T. Kovács; Rum: 87-es út, Rába, XN42, 18.08.1998, 3, A. Ambrus, T. Kovács; Sárvár: 84-es út, Rába, XN43, 12.05.1998, 1, A. Ambrus, K. Bánkuti, T. Kovács; 23.06.1998, 8, A. Ambrus, K. Bánkuti, T. Kovács.

Oligoneuriella pallida (Hagen, 1855)

Known distribution — Transpalearctic.

Literature data of adults — Adults were recorded from the following localities: Budapest (Hagen 1855, cf. Mol 1984; Mocsáry 1899; Pongrácz 1914; Ujhelyi 1959, sub nom. *Oligoneuriella rhenana* cf. Mol 1984); Drávapalkonya (Sziráki 1995); Drávasztára (Sziráki 1995); Nagytétény (Ujhelyi 1966, sub nom. *Oligoneuriella rhenana,* cf. Mol 1984); Szentborbás (Sziráki 1995); Tanakajd (Ujhelyi 1966, sub nom. *Oligoneuriella rhenana,* cf. Mol 1984); Vejti (Sziráki 1995).

New records of larvae — Drávasztára: Dráva, YL17, 24.07.1997, 4, A. Ambrus, T. Kovács, A. Varga; Körmend: 86-os út, Rába, XN20, 24.06.1998, 1, A. Ambrus, K. Bánkuti, T. Kovács; Molnaszecsőd: döröskei út, Rába, XN21, 18.08.1998, 2, A. Ambrus, T. Kovács; Rábahídvég: 8-as út, Rába, XN31, 18.08.1998, 1, A. Ambrus, T. Kovács; Rum: 87-es út, Rába XN42, 18.08.1998, 4, A. Ambrus, T. Kovács; Sárvár: 84-es út, Rába XN43, 23.06.1998, 9, A. Ambrus, K. Bánkuti, T. Kovács.

Oligoneuriella polonica Mol, 1984

Known distribution — It has been recorded from Poland (Sowa 1973, larva, sub nom. *O. pallida,* cf. Mol 1984), Slovakia (Soldán 1978, larva sub nom. *O. mikulskii*) and Bulgaria (Russev and Vidinova 1994). The last-mentioned paper lists Hungary, referring to papers of Sowa (1973) and Mol (1984). However, Mol (1984) described his species on the basis of larvae, and their localities are in Poland. Hungary is listed among the data of the adults of *O. pallida.*

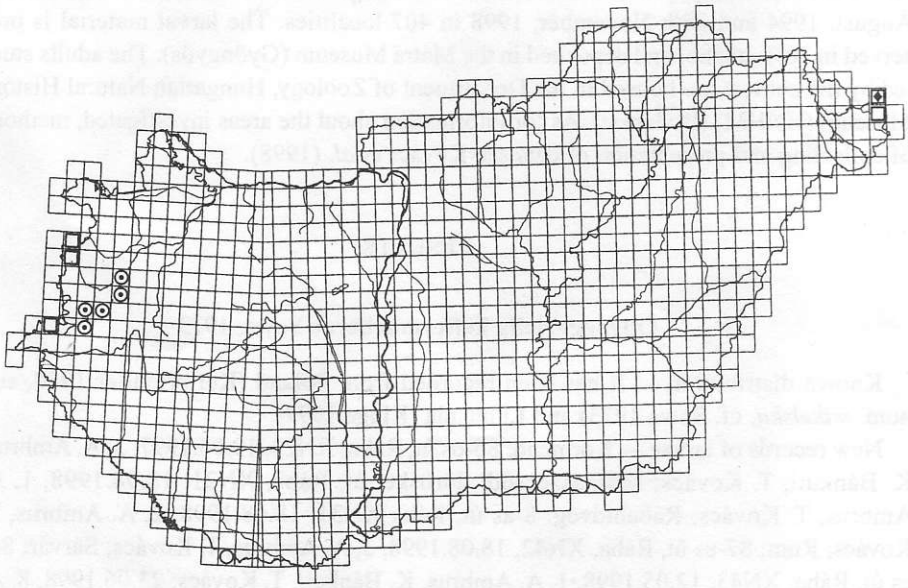


Fig. 1. Localities of *Oligoneuriella* species in Hungary. ● = *O. keffermuellerae*, ○ = *O. pallida*, - ♦ = *O. polonica*, □ = *O. rhenana*

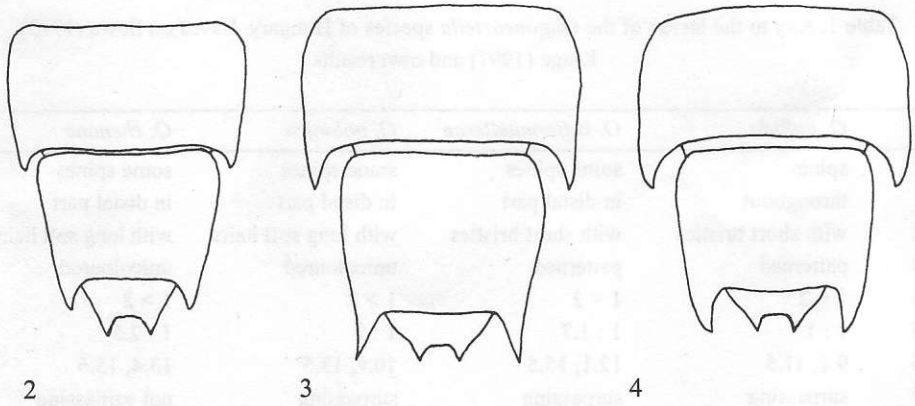
New records of larvae — Tiszabecs: Mázsáló, Tisza, FU33, 04.08.1994., 2, T. Kovács Sn., T. Kovács; 03.08.1995, 1, P. Juhász, T. Kovács; 06.06.1996, 2, P. Juhász, T. Kovács; Tiszabecs: Szabó-füzes, state border stone No. 109, Tisza, FU33, 03.08.1995, 2, P. Juhász, T. Kovács.

Oligoneuriella rhenana (Imhoff, 1852)

Known distribution — Europe, except for Great Britain and Fennoscandia.

Literature data of adults — Adults were recorded from the following localities: Drávasztára (Sziráki 1995); Kőszeg (Ujhelyi 1959, the specimens is not found in the HNHM); Szaporca (Sziráki 1998). Of the specimens published by Ujhelyi (1966) as *O. rhenana*, one from Nagytétény and one from Tanakajd are undoubtedly *O. pallida* (see data of *O. pallida* mentioned above). The specimens from Kállósemjén, Sopronhorpács and the other material from Tanakajd cannot be determined with certainty because these are females of inperfect condition, so these data should be considered unreliable. Further two specimens, still unpublished, with the following data, are found in the HNHM: Vasegerszeg: 08.08.1962, 1 male, 1 female, Németh.

New records of larvae — Csörötnek: rönöki út, Rába, XN00, 28.05.1998, 1, A. Ambrus; Kőszeg: Hámor, Gyöngyös, XN15, 31.07.1997, 6, A. Ambrus; Magyarlak: strand, Rába, XN00, 19.06.1997, 9, A. Ambrus, K. Bánkuti, T. Kovács; 24.06.1998, 12, A. Ambrus, K. Bánkuti, T. Kovács; Máriaújfalu: Malom-szeg, Rába, XN00, 28.05.1998, 3, A. Ambrus; Lukácsháza: Kiscsömöte, Gyöngyös, XN14, 02.07.1998, 1, A. Ambrus; Tiszabecs: Batár torkolat, Tisza, FU32, 30.07.1995, 10, T. Kovács, G. Szilágyi; Tiszabecs: Mázsáló, Tisza FU33, 01.08.1995, 2, T. Kovács, G. Szilágyi; 03.08.1995, 1, P. Juhász, T. Kovács.



Figs 2–4. Abdominal segments 8 and 9 of *Oligoneuriella polonica* and *O. rhenana*. 2: *O. polonica* (Tiszabecs, Tisza), 3: *O. rhenana* (Tiszabecs, Tisza), 4: *O. rhenana* (Magyarlak, Rába)

DISCUSSION

Of the four species of *Oligoneuriella* found during the collectings of larvae, *O. keffermuellerae* and *O. polonica* are new to the fauna of Hungary. The finding of *O. keffermuellerae* is especially interesting, as it is its first record from the Carpathian Basin. It was found in the Rába river only, between Körmend and Sárvár, in coexistence with *O. pallida* in all cases. The occurrence of *O. polonica* is not surprising, because it was already known from the adjacent Slovakia. It was found in a few localities of the upper reaches of the Tisza river. *O. pallida* was found in the Dráva and Rába; *O rhenana* in the Gyöngyös, Rába and upper reaches of the Tisza.

The Rába is home to three species (*O. keffermuellerae*, *O. pallida*, *O. rhenana*), the Tisza is to two (*O. polonica*, *O. rhenana*), the Dráva and the Gyöngyös are to one each (*O. pallida* and *O. rhenana*, respectively). The records are depicted in Fig. 1.

O. keffermuellerae and *O. pallida* were found in the middle and lower reaches of the rivers, in the slow-running water near the riverside, while the rheophilous *O. rhenana* was collected in the upper reaches of the rivers. This is well demonstrated by the arrangement of the localities along the Rába. Sowa (1975) mentioned *O. polonica* from slow-running rivers with sandy bottom. However, we collected it, along with *O. rhenana*, from large pebbles of the gravelly bottom of the fast-running stretches of the Tisza.

Table 1 shows that *O. pallida* is easily distinguishable by the spines situated throughout the fore tibia, while *O. keffermuellerae* is distinctive because of the length ratios of the gills. Males of *O. polonica* és *O. rhenana* may be separated by the shape of eyes. Differences of the females are illustrated by the drawings of abdominal segments of 8 and 9 (Figs 2–4). Mature larvae are much easier to identify; the proper time for collecting them is in July and August.

Table 1. Key to the larvae of the *Oligoneuriella* species of Hungary. Based on Sowa (1973), Kluge (1997) and own results

	O. pallida	*O. keffermuellerae*	*O. polonica*	*O. rhenana*
1	spines throughout	some spines in distal part	some spines in distal part	some spines in distal part
2	with short bristles	with short bristles	with long soft hairs	with long soft hairs
3	patterned	patterned	unicoloured	unicoloured
4	1 = 2	1 < 2	1 > 2	1 > 2
5	1 : 1	1 : 1.7	1 : 2	1 : 2.5
6	9.1, 11.5	12.1, 15.5	10.9, 13.5	13.4, 15.6
7	surpassing	surpassing	surpassing	not surpassing

1: spines of dorsal side of fore tibia, 2: basal half of posterior margin of middle and hind femora, 3: pigmentation on body, 4: relation of the length of gill blades of abdominal segment 1 to 2, 5: ratio of the length of the middle tarsus to tibia, 6: average of the body lengh of full-grown larvae, without caudal filament and cerci (male, female), 7: eyes of full-grown male larva surpassing outline of head or not.

Slight variation is apparent between eastern (Tisza) and western (Gyöngyös, Rába) populations of *O. rhenana* in the shape of abdominal segments 8 and 9 (Figs 3–4). These segments of the western populations are similar to those of *O. marichuae* Alba Tercedor, 1983. However, the vestiture of the basal half of posterior margin of middle and hind femora is typical to *O. rhenana*. Alba Tercedor (1983) distinguished larvae of *O. marichuae* on the basis of shape of abdominal segments (see Alba Tercedor 1983: Fig. 18) and vestiture of basal posterior margin of middle and hind femora.

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REFERENCES

Alba Tercedor, J. (1983): A new species of the genus Oligoneuriella (Ephemeroptera: Oligoneuriidae) From Spain. — *Aquat. Ins.* **5**: 131–139.

Hagen, H. A. (1855): Die Ephemeren-Gattung Oligoneuria. — *Stettin. ent. Ztg.* **16**: 262–270.

Keffermüller, M. (1964): Uzupełnienie badań nad fauną jętek (Ephemeroptera) Wielkopolski. — *Badan. fizjogr. Pol. zachod.* **14**: 69–86.

Kluge, N., (1997): Ephemeroptera. — In: Tsalolikhin, S. J. (ed.): *Key to freshwater invertebrates of Russia and adjacent lands, Vol. 3.* Zoological Institute of Russian Acad. Sci., St. Petersburg, 176–220, pl. 8–20. [In Russian.]

Kovács, T., Ambrus, A., Bánkuti, K. and Juhász, P. (1998): New Hungarian mayfly (Ephemeroptera) species arising from collectings of larvae. — *Miscnea zool. hung.* **12**: 55–60.

Mocsáry, S. (1899): Ordo. Pseudo-neuroptera. — In: *A Magyar Birodalom Állatvilága (Fauna Regni Hungariae).* A. K. M. Természettudományi Társulat, Budapest, pp. 23–27.

Mol, A. W. M. (1984): Oligoneuriella polonica n. sp., and a note on O. pallida (Hagen, 1855) (Ephemeroptera: Oligoneuriidae).— *Ent. Ber. Amst.* **44**: 126–128.

Pongrácz, S. (1914): Magyarország Neuropteroidái. (Enumeratio Neuropteroideum Regni Hungariae.) — *Rovart. Lap.* **21**: 109–155.

Russev, B. and Vidinova, Y. (1994): New representatives of the order Ephemeroptera (Insecta) for the fauna of Bulgaria. — *Lauterbornia,* **15**: 85–87.

Soldán, T. (1978): Mayflies (Ephemeroptera) new to the fauna of Czechoslovakia found in 1972–1977. — *Acta ent. bohemoslov.* **75**: 319–329.

Sowa, R. (1973): Contribution à l'étude des Oligoneuriella Ulm. européennes (Ephemeroptera, Oligoneuriidae). — *Bull. Acad. pol. sci. (Sci. Biol.)* **21**: 657–665.

Sowa, R. (1975): Ecology and biogeography of mayflies (Ephemeroptera) of running waters in the Polish part of the Carpathians. 1. Distribution and quantitative analysis. — *Acta hydrobiol.* **17**: 223–297.

Sziráki, Gy. (1995): Adatok a Dráva-mellék kérész (Ephemeroptera) faunájának ismeretéhez. (Contribution to the knowledge of mayflies (Ephemeroptera) of the Dráva Region, Hungary.) — *Dunántúli Dolg. Term. tud. Sorozat,* **8**: 37–39.

Sziráki, Gy. (1998): A Dráva mente kérész (Ephemeroptera) faunája. (The mayfly (Ephemeroptera) fauna of the Dráva region, Hungary.) — *Dunántúli Dolg. Term. tud. Sorozat,* **9**: 131–134.

Ujhelyi, S. (1959): Kérészek-Ephemeroptera. — In: *Magyarország Állatvilága (Fauna Hungariae),* **V**, 5. Akadémiai Kiadó, Budapest, 96 pp.

Ujhelyi, S. (1966): The mayflies of Hungary, with the description of a new species, Baetis pentaphlebodes sp. n. (Ephemeroptera). — *Acta zool. hung.* **12**: 203–210.

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Authors' addresses: T. KOVÁCS and K. BÁNKUTI
Mátra Museum
H–3200 Gyöngyös, Kossuth L. u. 40
HUNGARY

A. AMBRUS
Hortobágy National Park Directorate
Thematic Information Centre of Nature Conservation
H–9495 Kópháza, Jurisich M. u. 16
HUNGARY