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New records of Pediciidae (Diptera: Tipuloidea) from Hungary

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Abstract – Eleven species of hairy-eyed craneflies (Pediciidae) are known to occur in Hungary. *Dicranota subtilis* Loew, 1871 and *Pedicia pallens* Savchenko, 1978 are reported for the first time and the presence of *Pedicia straminea* (Meigen, 1838) is confirmed in Hungary.

Key words – *Dicranota*, *Tricyphona*, *Pedicia*, *Ula*

INTRODUCTION

Hairy-eyed craneflies (Pediciidae) are a small dipteran family with 495 species worldwide. These variously sized, slender craneflies have some common features such as the presence of short erect hairs between ommatidia, spurred tibiae, four-branched media (M) and Sc2 retracted before the origin of Rs (Starý 1992). In the Western Palearctic 80 species were recorded so far (Oosterbroek 2016). Most of the members belong to the subfamily Pediciinae.

The species generally live in mountainous areas and have predacious larvae associated with wet and humid environments (springs, bogs, fens, water-filled tree holes, brooks and river banks) (Kolcsár *et al*. 2012, Oboňa & Starý 2013, Ujvárosi *et al*. 2010). However, larvae of the genus *Ula* Haliday, 1833 (Ulinae) are mycetophagous and frequently present in decaying wood penetrated by mycelia or in sporocarps (fruiting bodies) of different mushrooms (Krivosheina 2008). The adults rest or swarm on/near the vegetation close to the larval habitat. Eleven species have been confirmed to occur in Hungary (Papp 2000, Oosterbroek 2016, Starý 2001, Starý & Papp 2001), and the presence of *Pedicia straminea* (Meigen, 1838) was not certified until now.

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MATERIAL AND METHODS

The dry material examined by the authors is predominantly deposited in the Diptera Collection of the Hungarian Natural History Museum, Budapest (HNHM). Additional material (stored in 70% ethanol) of the present study is deposited in the Diptera Collection of the Faculty of Biology and Geology, Babeş-Bolyai University, Cluj-Napoca (MZUBB), Romania and in the Natural History Museum Vienna (NHMW), Austria (dry material). The specimens were examined with different types of stereo microscope. The male terminalia were macerated in 10% KOH and put on glycerol prior to investigation of the details of the reproductive structures. For identification Dénes *et al.* (2016), Oosterbroek (2016), Paramonov (2009), Ujvárosi & Bálint (2012) were used.

The meanings of the Hungarian geographical and other terms written on the locality labels are as follows: erdő = forest, folyó = river, forrás = spring, nemzeti park = national park, patak = brook, tó = lake, völgy = valley.

RESULTS

A total of 366 specimens of Pediciidae belonging to 14 species from Hungary were identified. Two species are recorded for the first time from the country. One specimen deposited in the NHMW confirms the presence of *Pedicia straminea* in Hungary.

Dicranota (*Dicranota*) *bimaculata* (Schummel, 1829)

Material examined – **Nógrád county**: Nagykovácsi, Júliamajor, 3.VII.1981, leg. unknown (1 male, HNHM); Szendehely, Keskenybükki-patak, Duna–Ipoly Nemzeti Park, 1.IV.2002, leg. L. Papp (1 male, HNHM). **Pest county**: Szokolya, Les-völgy, Duna–Ipoly Nemzeti Park, 4.IV.2009, leg. L. Papp (1 male, HNHM).

Remarks – Widespread and common European species, frequently collected around springs and small brooks. In Hungary it is known from the Buda Hills and the Börzsöny Mts, but probably is more widespread in mountainous regions.

Dicranota (*Paradicranota*) *landrocki* Czizek, 1931

Material examined – **Borsod-Abaúj-Zemplén county**: Komjáti, Komlós-forrás, Aggteleki Nemzeti Park, 23.IV.1992, leg. L. Papp (1 female, HNHM). **Pest county**: Nagykovácsi, Júliamajor, 18.IX.1981 (1 male, HNHM), 24.IX.1981 (1 female, HNHM), 8.IX.1981, leg. unknown (1 female, HNHM); Szentendre, 22.IV.1957, leg. S. Ujhelyi (1 male, HNHM); Szokolya, Les-völgy, Duna–Ipoly Nemzeti Park, 24.IV.2000, leg. L. Papp (1 female, HNHM).

Remarks – Mainly Central European species, which prefers springs and small brooks. Has a distribution pattern similar to that *D. bimaculata* in Hungary.

Dicranota (*Paradicranota*) *pavida* (Haliday, 1833)

Material examined – **Baranya county**: Komló, Zobákpuszta, Hidasi-völgy, 26.V.1999, leg. L. Papp (1 male, HNHM), 21.VII.1999, leg. L. Papp (1 male, HNHM); Óbánya, Óbányai-völgy, 25.V.1999, leg. L. Papp (3 males, HNHM); Pécs, Melegmány-völgy, 27.V.1999, leg. L. Papp (1 male, HNHM). **Heves county**: Nagyvisnyó, 29.V.1957, leg. F. Mihályi & G. Zsirkó (1 specimen, HNHM). **Pest county**: Nagykovácsi, Júliamajor, 4.X.1981 (1 male, HNHM), 3.VII.1981 (1 male, HNHM), 7.VII.1981 (2 males, HNHM), 8.IX.1981 (1 male, 1 female, HNHM), 5.VII.1981 (1 male, HNHM), 18.IX.1981 (3 males, 1 female, HNHM), 17.IX.1981 (2 males, HNHM), 24.IX.1981 (5 males, HNHM), 24.IX.1981 (1 male, HNHM), 4.X.1981 (1 male, HNHM), 5.X.1981 (1 male, HNHM), 8.X.1981 (1 male, HNHM), 13.V.2000, leg. unknown (1 male, HNHM). **Vas county**: Velem, Hosszú-völgy, 27.VI.2000, leg. L. Papp & A. Szappanos (1 male, HNHM).

Remarks – Mainly Central and western European species, frequently collected at lower altitudes. It is the most common Hungarian *Dicranota* species.

Dicranota (*Paradicranota*) *simulans* Lackschewitz, 1940

Material examined – **Borsod-Abaúj-Zemplén county**: Regéc, Rostalló, 14.VI.2001, leg. L. Papp (1 male, HNHM). **Pest county**: Szokolya, Szén-patak, 13.V.2000, leg. L. Papp (1 male, HNHM).

Remarks – Has a distribution pattern similar to that of *D. pavida* in Europe, but less common.

Dicranota (*Paradicranota*) *subtilis* Loew, 1871

Material examined – **Nógrád county**: Diósjenő, Kemence-patak, 3.V.2006, leg. D. Murányi (1 male, HNHM).

Remarks – It is a typically montane species in Central and eastern Europe. Prefers habitats around small brooks and springs. First record from Hungary.

Pedicia (*Amalopis*) *occulta* (Meigen, 1830)

Material examined – **Borsod-Abaúj-Zemplén county**: Mályinka, Moldova-völgy, 29.III.2005, leg. M. Földvári (1 female, HNHM); Répáshuta, Pénz-patak, 24.IX.1965 (1 female, HNHM), 16.X.1965, leg. unknown (1 female, HNHM). **Heves county**: Nagyvisnyó, 29.V.1957, leg. F. Mihályi & G. Zsirkó (3 males, HNHM). **Pest county**: Szokolya, Szén-patak, 5.V.2001, leg. L. Papp (1 male,

HNHM). **Vas county**: Kőszeg, Hét-forrás, 29.III.2006, leg. L. Papp & M. Földvári (1 male, HNHM).

Remarks – Medium-sized species frequently collected around springs and brooks with rocky bottom. The males often swarm over littoral vegetation.

Pedicia (*Crunobia*) *littoralis* (Meigen, 1804)

Material examined – **Borsod-Abaúj-Zemplén county**: Cserépfalu, Hór-völgy, 11.VII.1984, leg. Á. Gelejiné Vály (1 specimen, HNHM); Répáshuta, Pénz-patak, 23.VII.1965 (1 female, HNHM), 27.VII.1965, leg. unknown (1 male?, HNHM). **Győr-Moson-Sopron county**: Sopron, Fáberrét, 1.IX.1965, leg. unknown (1 female, HNHM). **Heves county**: Nagyvisnyó, Taró-völgy, 8.IX.1982, leg. F. Bessenyi (1 female, HNHM); Szilvásvárad, Szalajka-völgy, 16.VIII.2013, leg. E. Török & L.-P. Kolcsár (2 males, MZUBB). **Pest county**: Nagykovácsi, Júliamajor, 7.VII.1981 (1 male, HNHM), 8.IX.1981 (1 male, HNHM), 1.X.1981 (1 female, HNHM), 4.X.1981, leg. unknown (1 female, HNHM).

Remarks – Medium-sized yellowish species. It prefers marshy and boggy habitats, but also occurs around brooks and small rivers.

Pedicia (*Crunobia*) *pallens* Savchenko, 1978

Material examined – **Borsod-Abaúj-Zemplén county**: Szin, Patkós-völgy, 12.IX.1988, leg. L. Papp (1 male, HNHM).

Remarks – A rare, montane species, with island-like distribution in Central Europe. First record from Hungary.

Pedicia (*Crunobia*) *straminea* (Meigen, 1838)

Material examined – **Heves county**: Eger, leg. Kowarz (1 male, NHMW).

Remarks – The exact date of collection is unknown (it is not indicated on the label of the specimen), but probably collected around 1880. The specimen has been identified and labelled by Kowarz as *Amalopis schinerii* (Kolenati, 1859), which is a synonym of *P. straminea*. Savchenko *et al.* (1992) mentioned Hungary with question mark among the countries of distribution. The occurrence of the species in Hungary is herewith confirmed.

Pedicia (*Pedicia*) *rivosa* (Linnaeus, 1758)

Material examined – **Borsod-Abaúj-Zemplén county**: Bükkzsérc, Hosszú-völgy, 26.V.1982 (1 male?, HNHM), 14.IV.1985, leg. O. Merkl (1 male?, HNHM); Cserépfalu, Hór-völgye, 9.VII.1984, leg. Á. Gelejiné Vály (1 female, HNHM); Mályinka, Moldova-völgy, 13.V.2005, leg. L. Papp & M. Földvári (1 female,

HNHM); Répáshuta, Leány-patak, 3.VI.1957, leg. L. Móczár (1 female, HNHM); Répáshuta, Pénz-patak, 16.V.1963 (2 males, HNHM), 19.VII.1966 (2 males, HNHM), 25.V.1964 (1 female?, HNHM), 19.VII.1966 (1 male?, HNHM), 15.V.1966 (1 male, HNHM), 28.VII.1964, leg. unknown (3 males, HNHM). **Heves county**: Mátraszentistván, 15.VIII.1981, leg. Cs. Szabóky (1 female, HNHM); Nagyvisnyó, Taró-völgy, 8.IX.1982, leg. F. Bessenyi (2 males, HNHM). **Veszprém county**: Farkasgyepű, 15.VII.1965 (1 male, HNHM), 17.VII.1965 (1 female, HNHM), 25.VII.1965, leg. unknown (1 female, HNHM).

Remarks – It is a large and conspicuous species, with eye-like triangular spot on the wings. Widespread and common.

Tricyphona (*Tricyphona*) *immaculata* (Meigen, 1804)

Material examined – **Baranya county**: Óbánya, Óbányai-völgy, 28.V.1999, leg. L. Papp (1 male, HNHM). **Borsod-Abaúj-Zemplén county**: Háromhuta, Istvánkút, 1.VI.1966, leg. M. Matura (1 female, HNHM); Mályinka, Moldova-völgy, 13.V.2005, leg. L. Papp & M. Földvári (5 males, HNHM); Nagyvisnyó, Csipkéskút, 20.IX.1959, leg. S. Tóth (1 male, HNHM); Varbó, Dobrica-kút, 13.V.2005, leg. M. Földvári (1 male, HNHM). **Fejér county**: Pákozd, Bella-völgy, 13.X.1959, leg. M. Matura (4 males, 1 female, HNHM). **Heves county**: Gyöngyössolymos, Cserkőbánya, Nagy-patak, 11.VI.2008, leg. L. Papp (1 male, HNHM); Mátraháza, Pisztrángos-tó, 12.X.1970, leg. L. Papp (2 males, 4 females, HNHM); Nagyvisnyó, Ablakos-kő völgy, 20.V.2004, leg. M. Földvári (1 male, HNHM). **Komárom-Esztergom county**: Tata, 4.X.1959, leg. S. Ujhelyi (1 male, 1 female, HNHM). **Pest county**: Fót, 4.V.1960, leg. M. Matura (1 female, HNHM); Nagykovácsi, Júliamajor, 17.IX.1981 (1 male, HNHM), 14.VIII.1981 (3 males, 1 female, HNHM), 11.VIII.1981 (1 male, HNHM), 18.IX.1981 (2 males, HNHM), 24.IX.1981 (3 males, HNHM), 8.IX.1981 (3 males, HNHM), 1.IX.1981, leg. unknown (1 male, HNHM); Ócsa, Turján, 5.V.1958, leg. M. Matura (16 males, 1 female, HNHM); Szokolya, Szén-patak, 13.V.2000, leg. L. Papp (1 male, HNHM). **Veszprém county**: Balatonfüred, 1.VI.1970, leg. M. Matura (1 female, HNHM). **Zala county**: Zalakomár, Kiskomárom, 16.V.1967, leg. M. Matura (4 females, HNHM). Nova, 17.V.1967, leg. Townes (5 females, HNHM); Zalalövő, 18.V.1967, leg. M. Matura (3 males, HNHM).

Remarks – Widespread and common species. Mostly collected around mountainous wet habitats, but also found in lower altitudes.

Ula (*Ula*) *bolitophila* Loew, 1869

Material examined – **Baranya county**: Komló, Hidasi-völgy, 21.VII.1999, leg. L. Papp (1 female, HNHM). **Heves county**: Szilvásvárad, Szalajka-völgy,

16.VIII.2013, leg. E. Török & L.-P. Kolcsár (1 male, MZUBB). **Vas county**: Velem, Hosszú-völgy, 26.VI.2000, leg. L. Papp (1 specimen, HNHM).

Remarks – It is a forest species, an obligate associate with fungi.

Ula (*Ula*) *mollissima* Haliday, 1833

Material examined – **Baranya county**: Óbánya, Óbányai-völgy, 28.V.1999, leg. L. Papp (1 male, HNHM); Orfű, Szuadó-völgy, 9.V.1964, leg. S. Horvatovich (1 male, HNHM). **Borsod-Abaúj-Zemplén county**: Aggtelek, 21.IX.1965, leg. M. Babos (42 males, 28 females, HNHM); Miskolc, Alsóhámor, 9.IX.1965, leg. M. Babos (1 male, 1 female, HNHM). **Budapest**: Csúcs-hegy, 17.X.1965, leg. M. Babos (6 males, 6 females, HNHM). Lomb-hegy, 17.IX.1965, leg. M. Babos (3 males, 5 females, HNHM); Hársbokor-hegy, 13.VII.1969, leg. M. Babos (1 male, HNHM); Tök-hegy, 27.IX.1965, leg. M. Babos (50 males, 35 females, HNHM). **Csongrád county**: Klárafalva, Maros folyó, 22.IV.1964, leg. S. Endrődy-Younga (1 male, HNHM). **Fejér county**: Csákvár, Hajdúvágás, 25.IV.1961, leg. M. Matura (1 male, HNHM). **Hajdú-Bihar county**: Újszentmargita, Margitai-erdő, 21.IV.1975, leg. L. Papp (1 male, HNHM). **Heves county**: Mátraszentimre, Galyatető, 1.IX.1970, leg. M. Babos (2 females, HNHM). **Nógrád county**: Drégelypalánk, 24.VII.1966, leg. M. Babos (2 males, 2 females, HNHM). **Pest county**: Csévharaszt, 1.V.2002, leg. L. Papp (1 male, HNHM); Visegrád, Gizella-telep, 6.X.1965, leg. M. Babos (4 males, 7 females, HNHM); Szentendre, Lajosforrás, 13.VII.1966, leg. M. Babos (2 males, 4 females, HNHM). **Somogy county**: Barcs, Középrigóc, 25.IX.1970, leg. M. Babos (2 males, 2 females, HNHM).

Remarks – Prefers fungal fruiting bodies, but larvae live also in soil and leaf-litter.

Ula (*Ula*) *sylvatica* (Meigen, 1818)

Material examined – **Borsod-Abaúj-Zemplén county**: Nagyhuta, Kemence-patak, 29.VI.1999, leg. L. Papp & Zs. Bajza (1 male, HNHM).

Remarks – It is a forest species, its larvae are associated with different fungi.

DISCUSSION

The Hungarian Pediciidae fauna now consists of 14 species belonging to four genera (*Dicranota* Zetterstedt, 1838, *Pedicia* Latreille, 1809, *Tricyphona* Zetterstedt, 1837 and *Ula* Haliday, 1833). The Hungarian Pediciidae fauna is rather poor compared to the neighbouring countries, which have extensive and

higher mountain ranges – Romania has 44, Slovakia 43, Austria 40 and Ukraine 29 species of Pediciidae. Similar number of or fewer species are known from the less studied Balkan countries: Serbia has 13, Slovenia 11 and Croatia only 8 species (Dénes *et al*. 2016, Kolcsár *et al*. 2012, 2015, Oosterbroek 2016).

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