

**Craneflies (Diptera: Tipuloidea) and phantom craneflies
(Diptera: Ptychopteridae) fauna around a metropolis
(Cluj-Napoca, Romania)**

Levente-Péter Kolcsár*, Edina Török, Lujza Keresztes

*kolcsar.peter@gmail.com**, *edinatorok7@gmail.com*, *keresztes2012@gmail.com*

Hungarian Department of Biology and Ecology, Faculty of Biology and Geology, University of Babeş-Bolyai, Clinicilor Street 5–7, Cluj-Napoca, Romania

Abstract

Between 2000 and 2013 a number of 1389 individuals belonging to Tipuloidea and Ptychopteridae were collected in Cluj-Napoca and its surroundings. Seven species are new to the Romanian fauna. Additionally, many species considered rare to the country's fauna were collected as well. The surprisingly high numbers of 114 species identified from here were unexpected but explainable by the mosaic pattern of habitats from almost natural to extremely modified under anthropogenic pressure. The present faunistic survey highlights the importance of maintaining natural habitats like Făgetul Clujului – Valea Morii Natura 2000 sites even in the vicinity of a such important metropolis like Cluj-Napoca, in Romania.

Keywords: Limoniidae, Pediciidae, Tipulidae, Natura 2000 sites, new records.

Introduction

Craneflies (Tipuloidea: Limoniidae, Pediciidae, Cylindrotomidae and Tipulidae) are a species-rich Dipteran group, a number of 15360 recognized species already known worldwide. Up to now 425 species have already been recorded from Romania (Kolcsár *et al.*, 2012, Oosterbroek 2013). Most of the species are associated with moist, wet environments and have semi aquatic larvae. They can be found frequently at margins of freshwaters, lakes and wet woodland habitats (Ujvárosi 2005). Larvae feed on plants, decaying leaves and woods, fungi and some genera (e.g.: *Pedicia*, *Dicranota*,

Tricyphona, *Hexatoma* species) are carnivores as well (Byers and Gelhaus 2008, Ujvárosi *et al.* 2010, Kolcsár *et al.* 2012). Adults are usually short-lived, with highly reduced mouth-parts, feeding on nectar or water only (Jong *et al.* 2008). Phantom craneflies (Ptychopteridae) comprises only a few species, with 14 known species from Europe. In the present, 8 species are reported from Romania (Zwick and Stary 2002, Ujvárosi *et al.* 2011a).

Craneflies assemblages from Cluj-Napoca and its surroundings are less investigated, even though a large area of natural or semi-natural habitats are still present under a harsh anthropogenic pressure. Cluj-Napoca is the second largest metropolis in Romania. The studied area is placed in hilly regions in the contact zone between the Apuseni Mountains, the Transylvanian Plain and the Someș Plateau. The region's altitude can vary between 300–750 m. The area is crossed by Someșul Mic River, but some brooks and streams are still present here (e.g.: Nadăsu, Morii, Gârbău). The city is situated in the temperate-continental climate zone. The annual mean temperature is 8.3 °C, with an annual precipitation of 580 mm and frequent heavy precipitations in summer (Cristea *et al.* 2002).

The major part of the studied area consists of agricultural lands and pastures with large anthropogenic impact. The most herbaceous vegetation is very disturbed and degraded. Semi-natural or less degraded habitats can be found in Fânațele Clujului Natural Reserve Area. Here typical semi-dry basiphilous grasslands were identified, which harbor high plant diversity and concentrate a global richness record at the 0.1- and 10- m² scales (Wilson *et al.* 2012).

The forested areas are formed typically by deciduous forests, from dry forests dominated by *Quercus* to wet *Carpinus*, *Carpinus-Fagus* forests. Along Someșul Mic River and streams the *Salix-Alnus* forests are the most characteristic associations, but today these ecosystems are highly disturbed, with a net dominancy of *Phragmites australis*.

The aim of this paper is to summarize our knowledge on the Tipuloidea and Ptychopteridae fauna of the area of Cluj-Napoca and highlight the importance to maintain and manage natural or semi natural habitats right in the vicinity of this metropolis.

Materials and methods

Between 2000 and 2013 a number of 18 sites were investigated in Cluj-Napoca and in the nearby surroundings (Fig. 1). A total amount of 1 398 individuals belonging to craneflies (Tipuloidea) and phantom craneflies (Ptychopteridae) were collected with sweeping. Wet material was stored in 70% alcohol and deposited in the Diptera Collection of the Faculty of Biology and Geology, Cluj-Napoca, Romania. The postabdomen of the male individuals was macerated in KOH 10% and specimens were examined under an Olympus SZ50 stereo zoom binocular microscope.

Specimens were collected by the authors and the following colleagues: András Varró, Áron Péter, Bea Lózer, Csongor Czézár, István Funkenhauzer, Janka Csepregi, Orsolya Dimény, Miklós Bálint, M. W. Manoliu.

The following sites were investigated (Fig. 1):

1. Vâlcele, hornbeam-beech (*Carpinus-Fagus*) forest, 660 m, 46.6891 N 23.6147 E;
2. Feleacu, Morii Valley, beech (*Fagus*) forest, 620 m, 46.6966 N 23.6148 E;
3. Feleacu, Morii Valley, small brook in the beech forest, 697 m, 46.6966 N 23.6148 E;

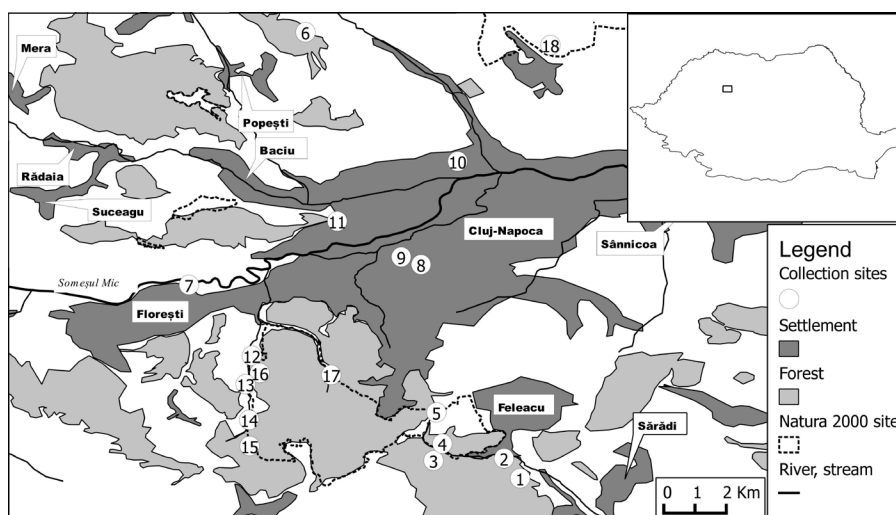


Fig. 1. Map of Cluj-Napoca and its surround area, the collecting sites are shown with numbers.
1. ábra: Kolozsvár és környékének térképe, a számok a mintavételi helyeket jelzik.

4. Feleacu, Capriorii Valley, hornbeam-beech forest and springs, Făgetul Clujului – Valea Morii Natura 2000 protected site (further FCVM), 666 m, 46.7015 N 23.5941 E;
5. Feleacu, Feleacu Hills, field and hedge, FCVM Natura 2000 protected site, 740 m, 46.7118 N 23.5921 E;
6. Chinteni, hornbeam-beech forest, 580 m, 46.8382 N 23.5483 E;
7. Florești, Someșul Mic River, willow forest, lakes, 358 m, 46.7542 N 23.5093 E;
8. Cluj-Napoca, --Alexandru Borza-- Botanical Garden, 395 m, 46.761 N 23.587 E;
9. Cluj-Napoca, Hașdeu Student Camp (Mikó Garden), ruderal garden with old tress, 373 m, 46.7635 N 23.5804 E;
10. Cluj-Napoca, Iris Quarter, houses with gardens, 350 m, 46.7953 N 23.5992 E;
11. Cluj-Napoca, Grigorescu Quarter, hedge, 400 m, 46.7754 N 23.5589 E;
12. Cluj-Napoca, Gârbău Valley, ruderal environment, brook, FCVM Natura 2000 protected site, 400 m, 46.7307 N 23.5303 E;
13. Cluj-Napoca, Gârbău Valley, brook in the alder-willow (*Alnus-Salix*) forest, FCVM Natura 2000 protected site, 416 m, 46.7212 N 23.5283 E;
14. Cluj-Napoca, Gârbău Valley, brook in the alder-willow forest, FCVM Natura 2000 protected site, 460 m, 46.7094 N 23.5295 E;
15. Cluj-Napoca, Gârbău Valley, brook in the hornbeam-beech forest, FCVM Natura 2000 protected site, 500 m, 46.7007 N 23.5296 E;
16. Cluj-Napoca, Făgetul Clujului, hornbeam-beech, beech forest, FCVM Natura 2000 protected site, 462 m, 46.7249 N 23.533 E;
17. Cluj-Napoca, Pleșca Valley, brook in the alder-willow and beech forest, FCVM Natura 2000 protected site, 460 m, 46.7243 N 23.5569 E;
18. Cluj-Napoca, Dealurile Clujului De Est Natura 2000 protected site, semi-dry habitat with small temporality lakes, 498 m, 46.8339 N 23.6303 E;

Results

A total number of 1398 specimens that belong to 114 species (Limoniidae 64, Tipulidae 39, Pediciidae 7, Ptychopteridae 4) were collected and identified. Six species belongs to Limoniidae are new to the Romanian fauna. These species are: *Dicranophragma (Brachylimnophila) separatum* (Walker, 1848);

Discobola caesarea (Osten Sacken, 1854); *Ormosia* (*Ormosia*) *rostrifera* Savchenko, 1973; *Paradelphomyia* (*Oxyrhiza*) *czizekiana* Stary, 1971; *Rhabdomastix* (*Rhabdomastix*) *laeta* (Loew, 1873); *Rhypholophus bifurcatus* Goetghebuer, 1920. *Tipula* (*Pterelachisus*) *pseudocrassiventris* Theowald, 1980 that belongs to Tipulidae is a new record to the country fauna as well.

The most abundant species were *Limonia phragmitidis* (300 specimens), *Limonia nubeculosa* (187), *Rhypholophus bifurcates* (66), *Prionolabis hospes* (52) and *Dicranota* (*Paradicranota*) *flammatra* (44) which represent 46% of the total number of individuals collected. The most frequently collected five species are *Limonia phragmitidis* (10 sites), *Limonia nubeculosa* (10), *Epiphragma* (*Epiphragma*) *ocellare* (9), *Dicranomyia* (*Dicranomyia*) *mitis* (8) and *Dicranomyia* (*Glochina*) *tristis* (7). A comprehensive list containing information about the collected species and the sites investigated in this study is presented in *Table 1*.

Discussion

The number of identified species from Cluj-Napoca and its surroundings are surprisingly high. The number of 110 different Tipuloidea taxa represents 25,5 % of the Romanian Tipuloidea fauna. The 4 *Ptychoptera* species collected by us represents 50% of the reported species from Romania (Ujvárosi et al. 2011a). The high level of biodiversity of this area is rather unexpected taking into account the severe human impact on these natural habitats and ecosystems, but suggest the continuous presence of natural microhabitats where such species can survive.

Ujvárosi *et al.* (2011b) present the same number (110) of Tipuloidea taxa from După Luncă marshland area in the Eastern Carpathian. This complex boggy area harbors a mosaic of natural habitats, but less important human impact. Comparing these results 44.5% (49) of the taxa could be found at both sites. *Limonia phragmitidis* was abundant in each site, which is a rather common species in wet and humid ecosystems in Romania. In contrast the rare crane fly, *Hexatoma grisea* is also present in both sites as well.

Comparing the species diversity detected in different sites investigated by us, the most species rich provided to be the Gârbău Valley with 74 taxa. This high number can be connected with the variety of habitats from forests to open grasslands, with different degrees of moisture of the soils and

Table 1. List of the collected craneflies (Tipuloidea) and phantom craneflies (Ptychopteridae) species from Cluj-Napoca and its surrounding areas. The numbers (1–18) refer to the collection sites. Latin numbers represent the months (I–XII), when the species were collected.
1 táblázat. Kolozsvár és környékéről gyűjtött lószúnyog-szerűek (Tipuloidea) és redős szúnyogok (Ptychopteridae) fajlistája. Az arab számok (1–18) a gyűjtési pontokat jelzik ahonnan a fajt gyűjtöttük. A latin számok a hónapokat jelölik (I–XII), amikor az illető fajt gyűjtöttük.

Species	Collecting sites	Flying period	Number of individuals
Limoniidae			
<i>Achyrolimonia decemmaculata</i> (Loew, 1873)	3	IX	1 ♂
<i>Antocha</i> (A.) <i>vitripennis</i> (Meigen, 1830)	7, 8	VI, VIII	6 ♂♂, 2 ♀♀
<i>Austrolimnophila</i> (A.) <i>brevicellula</i> (Stary, 1977)	11	VI	1 ♂
<i>Austrolimnophila</i> (A.) <i>ochracea</i> (Meigen, 1804)	2	VI	2 ♂♂
<i>Cheilotrichia</i> (C.) <i>imbuta</i> (Meigen, 1818)	12	VI	1 ♀
<i>Cheilotrichia</i> (E.) <i>cinerascens</i> (Meigen, 1804)	11, 16	X	2 ♂♂
<i>Dicranomyia</i> (D.) <i>chorea</i> (Meigen, 1818)	5, 15, 17	IV–VI, IX	6 ♂♂, 1 ♀
<i>Dicranomyia</i> (D.) <i>mitis</i> (Meigen, 1830)	1, 2, 5, 8, 9, 15, 26, 17	IV–VI, IX	24 ♂♂, 2 ♀♀
<i>Dicranomyia</i> (D.) <i>modesta</i> (Meigen, 1818)	3, 7, 8, 12, 14, 15	VI, VIII–X	27 ♂♂, 4 ♀♀
<i>Dicranomyia</i> (G.) <i>tristis</i> (Schummel, 1829)	1, 5, 7, 8, 9, 11, 12	V–VIII	12 ♂♂
<i>Dicranomyia</i> (M.) <i>occidua</i> (Edwards, 1926)	2	VI	2 ♂♂, 1 ♀
<i>Dicranomyia</i> (N.) <i>fusca</i> (Meigen, 1804)	8	IV	1 ♂
<i>Dicranophragma</i> (B.) <i>nemorale</i> (Meigen, 1818)	11	VI	2 ♂♂
<i>Dicranophragma</i> (B.) <i>separatum</i> (Walker, 1848)	2	VI	1 ♂
<i>Dicranoptycha fuscescens</i> (Schummel, 1829)	5	VI	1 ♂
<i>Discobola caesarea</i> (Osten Sacken, 1854)	2	VI, IX	3 ♂♂
<i>Eloephila maculata</i> (Meige, 1804)	4, 15	V, VIII	2 ♂♂
<i>Epiphragma</i> (E.) <i>ocellare</i> (Linnaeus, 1760)	3, 5, 9, 10, 11, 12, 13, 15, 16, 17	V–VI	19 ♂♂, 7 ♀♀
<i>Erioptera</i> (E.) <i>fusculentata</i> (Edwards, 1938)	12	VI	8 ♂♂
<i>Erioptera</i> (E.) <i>lutea l.</i> (Meigen, 1814)	11, 13	IV, VII, IX	3 ♂♂, 3 ♀♀
<i>Gonomyia</i> (G.) <i>lucidula</i> (de Meijere, 1920)	12	VI	2 ♂♂
<i>Gonomyia</i> (G.) <i>tenella</i> (Meigen, 1818)	2, 7	VI, VIII	3 ♂♂
<i>Helius</i> (H.) <i>flavus</i> (Walker, 1856)	3, 6, 12	VI	11 ♂♂

Species	Collecting sites	Flying period	Number of individuals
<i>Helius (H.) longirostris</i> L. (Meigen, 1818)	7	VIII	3♂♂
<i>Hexatoma (E.) grisea</i> (Riedel, 1914)	12, 15	V-VI	6♂♂
<i>Hexatoma (H.) fuscipennis</i> (Curtis, 1836)	12	V	3♂♂
<i>Hoplolabis (P.) pontica</i> (Savchenko, 1984)	12	VI	1♂
<i>Hoplolabis (P.) subalpina</i> (Bangarter, 1947)	12	VI	1♂
<i>Hoplolabis (P.) yezoana</i> (Alexander, 1924)	7	VIII	15♂♂, 12♀♀
<i>Idioptera pulchella</i> (Meigen, 1830)	2	VI	1♂
<i>Ilisia maculata</i> (Meigen, 1804)	12	X	1♂
<i>Limnophila (L.) pictipennis</i> (Meigen, 1818)	18	IV-V	19♂♂, 1♀
<i>Limnophila (L.) schranki</i> (Oosterbroek, 1992)	2, 4, 13, 15, 17, 18	IV-VI	37♂♂, 2♀♀
<i>Limonia macrostigma</i> (Schummel, 1829)	2, 3, 8, 14, 15	IV-VI, VIII-X	24♂♂, 3♀♀
<i>Limonia nigropunctata</i> n. (Schummel, 1829)	5, 8, 14, 15, 16	IV-V	17♂♂, 2♀♀
<i>Limonia nubeculosa</i> (Meigen, 1804)	2, 3, 4, 8, 9, 12, 14, 15, 16, 17	IV-VI, VIII-X	147♂♂, 40♀♀
<i>Limonia pannonica</i> (Kowarz, 1868)	8, 13, 17	IV-V	5♂♂, 1♀
<i>Limonia phragmitidis</i> (Schrank, 1781)	2, 3, 5, 8, 9, 11, 12, 13, 14, 16	IV-VI, VIII	224♂♂, 76♀♀
<i>Limonia sylvicola</i> (Schummel, 1829)	2, 13, 15, 16	V-VI	9♂♂, 4♀♀
<i>Lipsothrix remota</i> (Walker, 1848)	2	VI	3♂♂
<i>Metalimnobia (M.) bifasciata</i> (Schrank, 1781)	2, 12	VI	1♂, 1♀
<i>Molophilus (M.) appendiculatus</i> (Staeger, 1840)	2	VI	2♂♂
<i>Molophilus (M.) griseus</i> (Meigen, 1804)	16	X	2♂♂
<i>Molophilus (M.) obscurus</i> (Meigen, 1818)	12	VI	6♂♂, 4♀♀
<i>Molophilus (M.) ochraceus</i> (Meigen, 1818)	12	VI	2♂♂
<i>Molophilus (M.) pullus</i> (Lackschewitz, 1927)	17	IV	6♂♂
<i>Neolimnomyia filata</i> (Walker, 1856)	2	VI	10♂♂
<i>Neolimonia dumetorum</i> (Meigen, 1804)	3, 14, 16	V-VI, IX-X	4♂♂
<i>Ormosia (O.) hederæ</i> (Curtis, 1835)	13	IX	1♂
<i>Ormosia (O.) lineata</i> (Meigen, 1804)	14	IV	4♂♂
<i>Ormosia (O.) rostrifera</i> (Savchenko, 1973)	16	V	1♂

Species	Collecting sites	Flying period	Number of individuals
<i>Paradelphomyia</i> (O.) <i>czizekiana</i> (Stary, 1971)	2, 13	VI, IX	5♂♂
<i>Paradelphomyia</i> (O.) <i>senilis</i> (Haliday, 1833)	12	VI	1♂, 1♀
<i>Phylidorea</i> (P.) <i>ferruginea</i> (Meigen, 1818)	6	VII	1♂
<i>Phylidorea</i> (P.) <i>longicornis</i> L. (Schummel, 1829)	2	VI	1♂
<i>Pilaria fuscipennis</i> (Meigen, 1818)	6	VI	1♂
<i>Prionolabis hospes</i> (Egger, 1863)	3	IV	52♂♂
<i>Pseudolimnophila</i> (P.) <i>lucorum</i> (Meigen, 1818)	12, 18	IV, VI	9♂♂
<i>Pseudolimnophila</i> (P.) <i>sepium</i> (Verrall, 1886)	2, 12, 13	VI, IX	12♂♂, 2♀♀
<i>Rhabdomastix</i> (R.) <i>laeta</i> (Loew, 1873)	2	VI	1♂
<i>Rhipidia</i> (Rhipidia) <i>maculata</i> (Meigen, 1818)	8	VII	1♂
<i>Rhypholophus bifurcatus</i> (Goetghebuer, 1920)	2, 13, 14, 16	IX–X	57♂♂, 9♀♀
<i>Rhypholophus haemorrhoidalis</i> (Zett., 1838)	2, 13	IX	6♂♂
<i>Tasiocera</i> (D.) <i>murina</i> (Meigen, 1818)	2	VI	1♂
Ptychopteridae			
<i>Ptychoptera</i> (Pa.) <i>handlirschi</i> (Czizek, 1919)	2	VI	5♂♂, 1♀
<i>Ptychoptera</i> (Pt.) <i>albimana</i> (Fabricius, 1787)	14		15♂♂
<i>Ptychoptera</i> (Pt.) <i>contaminata</i> (Linnaeus, 1758)	18		4♂♂, 5♀♀
<i>Ptychoptera</i> (Pt.) <i>scutellaris</i> (Meigen, 1804)	13		7♂♂
Pediciidae			
<i>Dicranota</i> (D.) <i>bimaculata</i> (Schummel, 1829)	3, 12, 13, 14, 17	IV–V, IX	34♂♂, 2♀♀
<i>Dicranota</i> (P.) <i>flammatra</i> (Stary, 1981)	3, 13	IV–V	39♂♂, 5♀♀
<i>Dicranota</i> (P.) <i>gracilipes</i> (Wahlgren, 1905)	14	IX	10♂♂, 3♀♀
<i>Dicranota</i> (P.) <i>landrocki</i> (Czizek, 1931)	3, 13, 14, 17	IV, IX	19♂♂, 3♀♀
<i>Dicranota</i> (P.) <i>subflammatra</i> (Stary, 1998)	13	V	7♂♂
<i>Pedicia</i> (C.) <i>zernyi</i> (Lackschewitz, 1940)	13	V	2♂♂
<i>Tricyphona</i> (T.) <i>immaculata</i> (Meigen, 1804)	1, 3, 12	V–VI, IX	2♂♂, 1♀
Tipulidae			
<i>Ctenophora</i> (Cn.) <i>flaveolata</i> (Fabricius, 1794)	9	V	1♀
<i>Ctenophora</i> (Ct.) <i>ornata</i> (Meigen, 1818)	8, 8, 10	VI–VIII	6♂♂
<i>Dictenidia bimaculata</i> (Linnaeus, 1760)	8, 9	VI–VII	6♂♂
<i>Nephrotoma appendiculata</i> a (Pierre, 1919)	5, 6, 8, 9, 10, 13	V–VI, X	22♂♂

Species	Collecting sites	Flying period	Number of individuals
<i>Nephrotoma cornicina</i> c. (Linnaeus, 1758)	8	VII	1♂
<i>Nephrotoma crocata</i> c. (Linnaeus, 1758)	8, 10, 12, 18	IV–VI	7♂♂, 2♀♀
<i>Nephrotoma croceiventris lindneri</i> (Mannheims)	18	IV–V	4♂♂, 3♀♀
<i>Nephrotoma dorsalis</i> (Fabricius, 1781)	8, 9	VII–VIII	4♂♂, 1♀
<i>Nephrotoma flavescens</i> (Linnaeus, 1758)	6, 9	V–VI	15♂♂
<i>Nephrotoma quadrifaria</i> q. (Meigen, 1804)	9	VI	1♂
<i>Nephrotoma scalaris</i> s. (Meigen, 1818)	9, 12	V–VI	4♂♂, 1♀
<i>Tanyptera</i> (T.) <i>atrata</i> a. (Linnaeus, 1758)	5, 13	V	4♂♂
<i>Tipula</i> (A.) <i>balcanica</i> Vermoolen, 1983	3, 12, 13	V–VI	4♂♂
<i>Tipula</i> (Acutipula) <i>bosnica</i> (Strobl, 1898)	2	VI	2♂♂
<i>Tipula</i> (A.) <i>tenuicornis</i> (Schummel, 1833)	5, 15, 17	IV–V	12♂♂
<i>Tipula</i> (L.) <i>fascipennis</i> (Meigen, 1818)	3, 8, 13	V–VII	6♂♂
<i>Tipula</i> (L.) <i>helvola</i> (Loew, 1873)	4, 8	VII–VIII	4♂♂
<i>Tipula</i> (L.) <i>lunata</i> (Linnaeus, 1758)	5, 9, 11, 13, 14	V–VI	26♂♂
<i>Tipula</i> (L.) <i>truncata</i> t. (Loew, 1873)	13	VI	2♂♂
<i>Tipula</i> (L.) <i>vernalis</i> (Meigen, 1804)	8, 9, 12, 18	V	5♂♂, 1♀
<i>Tipula</i> (P.) <i>crassiventris</i> (Riedel, 1913)	17, 18	IV	6♂♂
<i>Tipula</i> (P.) <i>irrorata</i> (Macquart, 1826)	16	XI	1♂
<i>Tipula</i> (P.) <i>pabulina</i> (Meigen, 1818)	16, 17	IV–V	3♂♂
<i>Tipula</i> (P.) <i>pauli</i> (Mannheims, 1964)	16	V	6♂♂
<i>Tipula</i> (P.) <i>pseudocrassiventris</i> (Theowald, 1980)	1, 5	IV, VI	3♂♂
<i>Tipula</i> (P.) <i>pseudovariipennis</i> (Czizek, 1912)	5, 16, 18	IV–V	9♂♂
<i>Tipula</i> (S.) <i>cheethami</i> (Edwards, 1924)	2	VI	2♂♂
<i>Tipula</i> (S.) <i>variicornis</i> (v.Schummel, 1833)	13	V	1♂
<i>Tipula</i> (T.) <i>italica errans</i> (Theowald, 1984)	12	IX	1♂
<i>Tipula</i> (T.) <i>oleracea</i> (Linnaeus, 1758)	18	IV	2♂♂
<i>Tipula</i> (T.) <i>paludosa</i> (Meigen, 1830)	2, 13, 14	V, IX	3♂♂, 2♀♀
<i>Tipula</i> (V.) <i>hortorum</i> (Linnaeus, 1758)	3, 5, 17, 18	IV–V	14♂♂, 1♀
<i>Tipula</i> (V.) <i>nubeculosa</i> (Meigen, 1804)	2, 8	IV, VI	2♂♂
<i>Tipula</i> (V.) <i>pallidicosta</i> p. (Pierre, 1924)	3	VIII	1♂
<i>Tipula</i> (V.) <i>scripta scripta</i> (Meigen, 1830)	4, 12	VI	2♂♂

Species	Collecting sites	Flying period	Number of individuals
<i>Tipula (Y.) caesia</i> (Schummel, 1833)	3, 12, 17	IV, VI	3♂♂
<i>Tipula (Y.) coerulescens</i> (Lackschewitz, 1923)	17	IV	1♂♂
<i>Tipula (Y.) lateralis</i> (Meigen, 1804)	7, 15, 17, 18	IV, VIII	7♂♂
<i>Tipula (Y.) pruinosa p.</i> (Wiedemann, 1817)	12	VI	1♂♂

with a less severe human impact. In the Gârbău Valley there are springs, brooks, small marshlands, *Alnus-Salix* forests, wet and dry *Carpinus*, *Carpinus-Fagus* forests and *Pinus* planted forests. In the Morii Valley a number of 57 taxa were collected, which is highly similar to that of the Gârbău Valley. Parts of the Gârbău and Morii Valley belong to the Natura 2000 area of the Făgetul Clujului – Valea Morii. In these two sites a total of 77 Tipuloidea and Ptychopteridae taxa were identified, and all new records to the Romania fauna were collected from here. Some rare species with limited distribution in Europe were identified from here as well (*Hexatoma grisea*, *Hoplolabis pontica*, *Hoplolabis subalpine*, *Molophilus pullus*, *Ormosia rostrifera*, *Tipula pseudocrassiventris* and *Tipula pauli*). Some valuable species connected with natural habitats are also present here (*Dicranomyia occidua*, *Hexatoma fuscipennis* and *Tasiocera murina*). Such species are protected in Finland due to their conservation status (Penttinen *et al.* 2010). In the city of Cluj-Napoca a number of 34 taxa are present, from which 12 species are present only in the gardens and parks of the city. In some cases such species have conservation status, like *Ctenophora flaveolata*, *Ctenophora ornata* and *Dictenidia bimaculata* which are associated with old woods. This species in Finland or Poland are listed in the country's Red List (Penttinen *et al.* 2010, Malkiewicz *et al.* 2012). The presence of these rare species were predictable in Cluj-Napoca as well, since old and not managed gardens (the dead woods and leaf mould are not removed) are still frequent, and also with the presence of large gardens (Botanical Garden, Mikó Garden) and old unused orchards around the city. The presence of some water-filled tree holes from here can offer good habitats for the species larvae. The protection of these gardens and orchards are highly recommended in the future to protect these rare and colourful crane flies. In the present in Romania Tipuloidea species are not protected, even though some species are good indicators, of the condition of the natu-

ral habitats (mostly wet habitats) and additionally comprehensive studies should be an important aim of the future.

Conclusions

The Tipuloidea fauna of Romania is still poorly investigated, this is reflected by the high number of new records (7 species) in such a limited area with important anthropogenic pressure. Cluj-Napoca has a rich Tipuloidea fauna despite of the strong human impact present in this area, with the presence of an important number of species which are rare and protected in other European countries. Our results bring new arguments on the presence of a high level of biodiversity even in the surroundings of a metropolis, and the importance of microhabitats, which can concentrate important number of species. Such microhabitats which bring the natural conditions of these highly managed ecosystems from here have a high conservation value and needs protection.

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Egy metropolisz környékének (Kolozsvár, Románia) lószúnyog-szerű (Diptera: Tipuloidea) és redős szúnyog (Diptera: Ptychopteridae) faunája

Összefoglaló

A lószúnyog-szerűek (Tipuloidea) a kétszárnyúak (Diptera) legfajgazdagabb csoportja. Romániából eddig 425 fajukat jelezték. Redős szúnyogok (Ptychopteridae) kevés fajszerű légy család, amelynek eddig 8 fajt mutatták ki a hazai faunából. Kolozsvár Románia második legnagyobb metropolisza, amelyet átszel a Kis-Szamos folyó és néhány kisebb-nagyobb patak. A területre mérsékelt kontinentális klíma jellemző. A legtöbb terület Kolozsvár környékén mezőgazdaságilag megművelt szántó és legelő. Fás területekre lombhullató erdők jellemzők, amelyek között szárazabb tölgyeseket, gyertyánosokat, valamint gyertyános-bükkösöket, kisebb ültetett fenyves foltokat találunk. Kevésbé degradált élőhelyeket a Kelet-Kolozsvári-dombság, valamint a Kolozsvári Bükk és Malom völgye Natura 2000 védett területeken találunk. Cikkünkben Kolozsvár és közvetlen környékén 2000 és 2013 között 18 területen végzett gyűjtések eredményét összegezzük. A területen összesen 110 fajt sikerült kimutatni a lószúnyog-szerűek csoportjából, illetve 4 fajt a redős szúnyogok családjából. Románia faunájára 7 új fajt sikerült kimutatni, ezek a következők: *Dicranophragma (Brachylimnophila) separatum* (Walker, 1848), *Discobola caesarea* (Osten Sacken, 1854), *Ormosia (Ormosia) rostrifera* Savchenko, 1973, *Paradelphomyia (Oxyrhiza) czizekiana* Stary, 1971, *Rhabdomastix (Rhabdomastix) laeta* (Loew, 1873), *Rhypholophus bifurcatus* Goetghebuer, 1920 és a *Tipula (Pterelachisus) pseudocrassiventris* Theowald, 1980. Összehasonlítva a Fenék-rétláp (Gyergyói-medence) és környékéről közölt azonos fajszerű Tipuloidae közösséggel a fajok 44.5%-a azonos. Szűk elterjedésű és Európa más országaiban védett fajokat is sikerült kimutatni a területről. A Kolozsvári Bükk és Malomvölgy Natura 2000 területről összesen 77 faj jelenléte bizonyított, valamint az összes faunára új faj is erről a területről került elő. A magas fajdiverzitást az élőhelyek változatosságával, valamint viszonylagos jó természeti állapotukkal magyarázzuk. Eredményeink alapján elmondható, hogy az emberi zavaró tényezők ellenére magas fajszám mutatható ki a vizsgált csoportok esetében Kolozsvár környékéről, ezzel rámutatva az itt lévő élőhelyek fontosságára, valamint, hogy több Tipuloidea faj is jó indikátora lenne védett élőhelyeknek.