

An annotated list of Tipulidae (Insecta, Diptera) from Romania

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Summary: Since the last updated list of Tipulidae of Romania (2007) new data were accumulated in the last seven years. A number of 5 species are new records to the Romanian fauna, as *Tipula (Acutipula) latifurca* VERMOOLEN, 1983; *Tipula (Acutipula) vittata* MEIGEN, 1804; *Tipula (Lunatipula) recticornis* SCHUMMEL, 1833; *Tipula (Pterelachisus) pseudopruinosa* STROBL, 1895 and *Tipula (Savtshenkia) signata* STAEGER, 1840. A short comment on general distribution of species, with a critical revision on the published data is added. Original pictures on male genital and wing is also presented.

Key words: Tipulidae, new records, Romania

Introduction

Research of Romanian Tipulidae fauna was dating back at XIX century; however data on species composition and distribution in Romania are still sporadic. The last two updated list of Romanian Tipulidae were published recently (UJVÁROSI, 2002, 2007) containing a total number of 127 species (UJVÁROSI 2007, OOSTERBROEK 2013, KOLCSÁR *et al.* 2013 in press). During our intensive collecting of Tipulidae from different region of Romania a number of 5 new species to the countries fauna were identified by us and additionally new distribution data on several other species were also added.

Materials and methods

Between 2007 and 2013 Tipulidae species were investigated by us from different habitats, mostly in mountainous regions. Part of the material was stored in 96% alcohol and deposited in the Diptera Collection of the Faculty of Biology and Geology, Cluj-Napoca, Romania. The post abdomen of the male individuals was macerated in KOH 10% and then put on glycerol prior to morphology studies. Specimens were examined with an Olympus SZ50 dissection microscope equipped with Olympus SP500UZ, and a Sony Alpha 200 DSLR camera. The photos were modified in Photoshop CS4 program.

Results

A total number of 2567 specimens belongs to 108 species of Tipulidae were collected and identified by us based on personal collecting data from which five species are new to the Romanian fauna, as follows:

1. *Tipula (Acutipula) latifurca* VERMOOLEN, 1983

Material: Luncavița, Măcin Mountains, Fagilor Valley, 151 m, 45.198361°N 28.342211°E, June 1, 2005, 6♂♂, leg. L. Keresztes; June 2, 2013, 2♂♂ 1♀, leg. L. Keresztes, E. Török, L. P. Kolcsár. Luncavița, Măcin Mountains, Fagilor Valley, 500 m, 45.157266°N 28.322572°E, June 4, 2005, 4♂♂, leg. L. Keresztes.

Biology: Based on our recent data is a quite rare species in the Romanian fauna. The adults were collected in wooded bank of brooks and springs. Larvae are aquatic (SERCE and KOC 2005) and were also observed by us in shallow brooks under large stones. Field data suggest a flight period for this species from May to June. The wing and male genitalia are presented in Fig. 1, in comparison with its sibling species *Tipula (Acutipula) balcanica* Vermoolen, 1983.

Distribution: Bosnia-Herzegovina, Bulgaria, Greece (incl. Evvoia [Evia], Ikaria, Kos, Samos, Samothraki, Serifos, Skiathos, Thasos), Macedonia, Turkey (European part); Russia: North Caucasus; Georgia, Turkey (widespread, incl. Gokceada), Lebanon (OOSTERBROEK 2013).

2. *Tipula (Acutipula) vittata* MEIGEN, 1804

Material: Tulgheș, Hagota, Tisașul brook, 850 m, 46.861794°N 25.677228°E, August 18, 2010, 1♂, leg. L. P. Kolcsár.

Biology: Based on our recent data is a quite common species in the western and northern regions of Europe. The adults were frequently found in shaded and open situations in woodland, crossed by streams,

Fig. 1. *Tipula (Acutipula) latifurca*, a - right wing; b - ninth tergum; c - outer and inner gonostylus and *Tipula (Acutipula) balcanica* d - right wing; e - ninth tergum; f - outer and inner gonostylus.

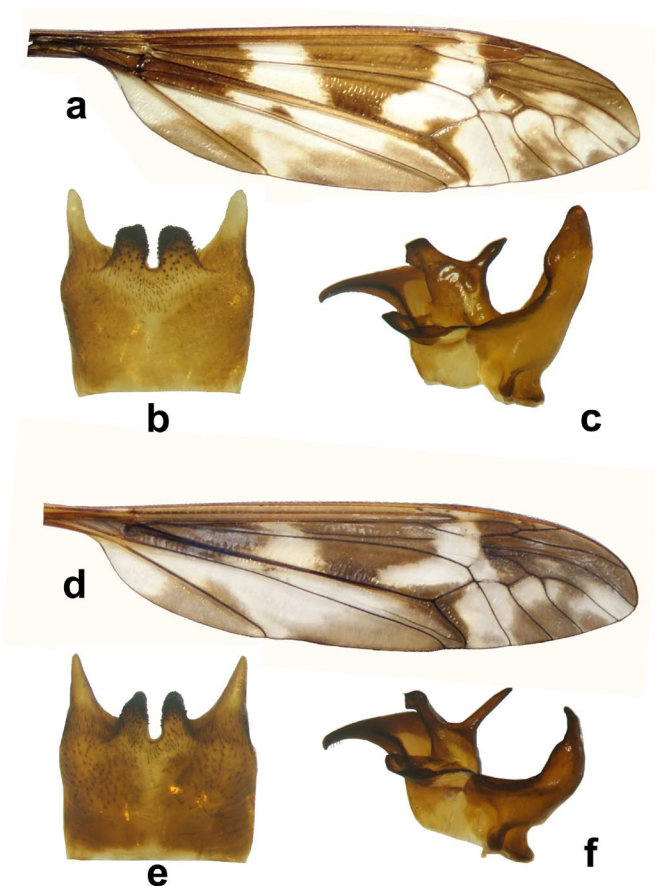
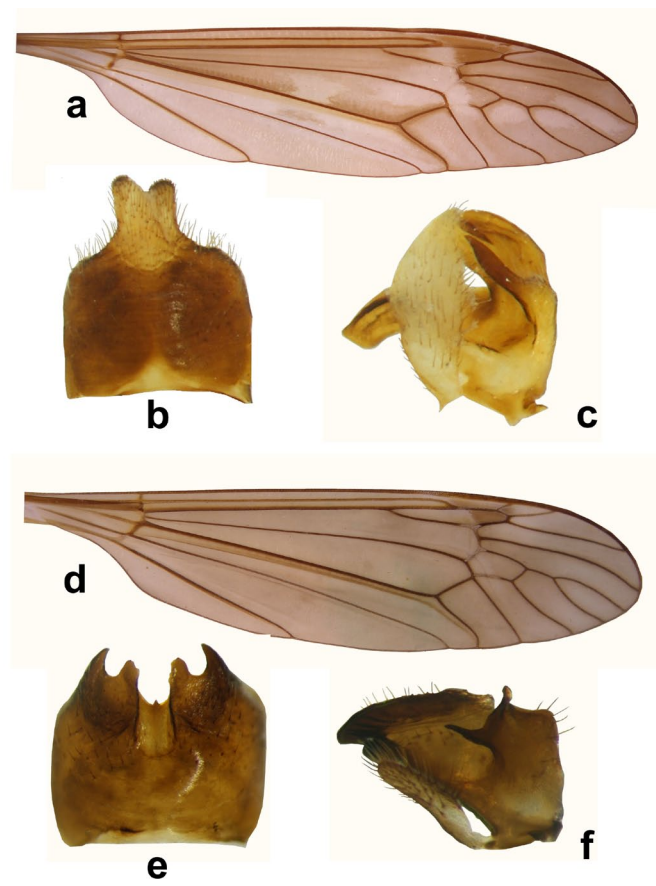


Fig. 2. *Tipula (Acutipula) vittata*, a - right wing; b - ninth tergum; c - outer and inner gonostylus and *Tipula (Pterelachisus) pseudopruinosa*, d - right wing; e - ninth tergum; f - outer and inner gonostylus.



retreating in muddy stream margins and even on wet heathland (BOARDMAN 2007). Larvae are aquatic, and can be found along different flowing and standing waters (CRANSTON and DRAKE 2010). Individuals examined by us were collected along spring brooks in woods. Based on literature data flight period for this species span from April to May (KRAMER 2011). The wing and male genitalia are presented in Fig. 2.

Distribution: Austria, Belgium, Bosnia-Herzegovina, Croatia, Czech Rep., Denmark, France, Germany, Great Britain, Greece, Ireland, Italy, Luxembourg, Macedonia, Montenegro, Netherlands, Norway (except north), Poland, Serbia, Slovakia, Slovenia, Spain, Sweden (except north), Switzerland; Russia: CET (Kalingradskaya oblast) (OOSTERBROEK 2013).

3. *Tipula (Pterelachisus) pseudopruinosa* STROBL, 1895

Material: Bălan, Haghimaș Mountains, Piatra Singuratică, springs, 1450 m, 46.681429°N 25.827155°E, July 13, 2003, 1♂, July 3, 2010, 1♂, July 11, 2012, 2♂♂, leg. L. Keresztes; Valea Mare, Rodnei Mountains, Rotundă Pass, Someșul Mare spring, 1220 m, 47.535434°N 25.021995°E, July

21, 2013, 1♂, leg. leg. L. Keresztes, E. Török, L. P. Kolcsár.

Biology: Based on our recent data is a quite rare species. Individuals examined by us were consequently collected along headwaters in spruce fir forests. Flight period is in July. Larvae are aquatic. The wing and male genitalia are presented in Fig. 2.

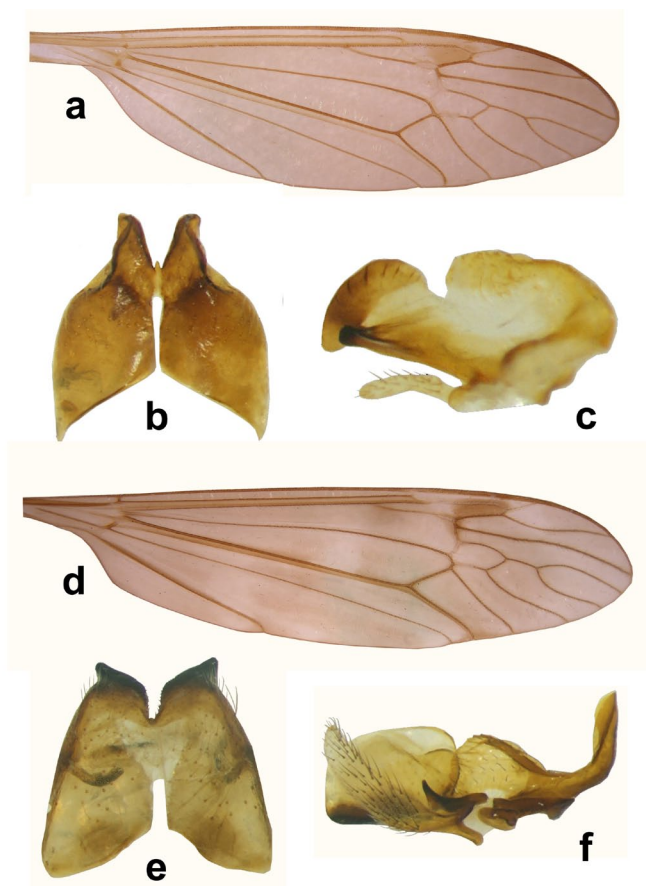
Distribution: Austria, Germany (Bayern), Liechtenstein, Slovakia, Switzerland, Ukraine (OOSTERBROEK 2013).

4. *Tipula (Lunatipula) recticornis* SCHUMMEL, 1833

Material: Bălan, Haghimaș Mountains, Piatra Singuratică, 1400m, 46.677567°N 25.827389°E, July 7, 2006, 1♂ 1♀, leg. L. Keresztes.

Biology: Larvae are aquatic, having indication value, being an ecologically significant saproxylic species (STARY 2009). Individuals examined by us were collected along spring brooks and wooded bank of brooks. It is a rare species, which is listed in Red List of Czech Republica with status endangered (MARTINOVSKY and BARTAK 2005). The flight period is short in July. The wing and male genitalia are presented in Fig. 3.

Fig. 3. *Tipula (Lunatipula) recticornis*, a - right wing; b. - ninth tergum; c - outer and inner gonostylus; *Tipula (Savtshenka) signata*, d - right wing; e. - ninth tergum; f - outer and inner gonostylus.



Distribution: Austria, Czech Rep., Finland (south), Germany, Lithuania, Poland, Slovakia, Sweden; Russia: CET (Moskovskaya oblast); Russia: WS (north, Altay, Tyva), ES (north); Mongolia (OOSTERBROEK 2013).

5. *Tipula (Savtshenka) signata* STAEGER, 1840

Material: Voşlăbeni, Giurgeu Depression, Senetea, După-Luncă swamp, 764 m, 46.625875°N 25.597453°E, September 7, 2011, 2♂♂ 1♀, leg. L. P. Kolcsár.

Biology: Based on our recent data is a rare species in marshlands, but the situation could quite different due to its flying period concentrated in autumn. This situation is highly supported by literature data (KRAMER 2011), where adults were frequently recorded in different mountainous forests. Larvae are aquatic. The wing and male genital are presented in Fig. 3.

Distribution: Andorra, Austria, Belarus, Belgium, Czech Rep., Denmark, Estonia, Finland, France, Germany, Great Britain, Ireland, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Slovakia, Spain (Gerona), Sweden, Switzerland, Ukraine; Russia: NET (Leningradskaya oblast, Arkhangelskaya oblast), CET (west); Kazakhstan (east) (OOSTERBROEK 2013).

Table. 1. Updated list of Romanian Tipulidae, * - collected by us; ** - first recorded.

Taxon name	Status
<i>Ctenophora (Cnemoncosis) fastuosa</i> LOEW, 1871	
<i>Ctenophora (Cnemoncosis) festiva</i> MEIGEN, 1804	*
<i>Ctenophora (Cnemoncosis) ornate</i> MEIGEN, 1818	*
<i>Ctenophora (Ctenophora) elegans</i> MEIGEN, 1818	
<i>Ctenophora (Ctenophora) flaveolata</i> (FABRICIUS, 1794)	*
<i>Ctenophora (Ctenophora) guttata</i> MEIGEN, 1818	*
<i>Ctenophora (Ctenophora) pectinicornis</i> (LINNAEUS, 1758)	*
<i>Dictenidia bimaculata</i> (LINNAEUS, 1760)	*
<i>Dolichozeza (Dolichozeza) albipes</i> (STROM, 1768)	*
<i>Nephrotoma aculeate</i> (LOEW, 1871)	*
<i>Nephrotoma analis</i> (SCHUMMEL, 1833)	*
<i>Nephrotoma appendiculata appendiculata</i> (PIERRE, 1919)	*
<i>Nephrotoma cornicina cornicina</i> (LINNAEUS, 1758)	*
<i>Nephrotoma crocata crocata</i> (LINNAEUS, 1758)	*
<i>Nephrotoma croceiventris lindneri</i> (MANNHEIMS, 1951)	
<i>Nephrotoma dorsalis</i> (FABRICIUS, 1781)	*
<i>Nephrotoma flavescens</i> (LINNAEUS, 1758)	*
<i>Nephrotoma flavipalpis</i> (MEIGEN, 1830)	
<i>Nephrotoma guestfalica guestfalica</i> (WESTHOFF, 1879)	
<i>Nephrotoma lamellata lamellate</i> (RIEDEL, 1910)	*
<i>Nephrotoma lunulicornis</i> (SCHUMMEL, 1833)	*
<i>Nephrotoma pratensis pratensis</i> (LINNAEUS, 1758)	*

Table. 1 continued. Updated list of Romanian Tipulidae, * - collected by us; ** - first recorded.

Taxon name	Status
<i>Nephrotoma quadrifaria quadrifaria</i> (MEIGEN, 1804)	*
<i>Nephrotoma quadristriata</i> (SCHUMMEL, 1833)	*
<i>Nephrotoma scalaris scalaris</i> (MEIGEN, 1818)	*
<i>Nephrotoma scurra</i> (MEIGEN, 1818)	*
<i>Nephrotoma submaculosa</i> EDWARDS, 1928	*
<i>Nephrotoma tenuipes</i> (RIEDEL, 1910)	*
<i>Nigrotipula nigra nigra</i> (LINNAEUS, 1758)	*
<i>Prionocera chosenicola</i> ALEXANDER, 1945	
<i>Tanyptera (Tanyptera) atrata atrata</i> (LINNAEUS, 1758)	*
<i>Tipula (Acutipula) balcanica</i> VERMOOLEN, 1983	*
<i>Tipula (Acutipula) bosnica</i> STROBL, 1898	*
<i>Tipula (Acutipula) fulvipennis</i> DE GEER, 1776	*
<i>Tipula (Acutipula) latifurca</i> VERMOOLEN, 1983	**
<i>Tipula (Acutipula) luna</i> WESTHOFF, 1879	*
<i>Tipula (Acutipula) tenuicornis</i> SCHUMMEL, 1833	*
<i>Tipula (Acutipula) vittata</i> MEIGEN, 1804	**
<i>Tipula (Beringotipula) unca unca</i> WIEDEMANN, 1817	*
<i>Tipula (Dendrotipula) flavolineata</i> MEIGEN, 1804	*
<i>Tipula (Emodotipula) obscuriventris</i> STROBL, 1900	*
<i>Tipula (Lunatipula) affinis</i> SCHUMMEL, 1833	
<i>Tipula (Lunatipula) alpina</i> LOEW, 1873	
<i>Tipula (Lunatipula) bispina</i> LOEW, 1873	*
<i>Tipula (Lunatipula) cinerascens</i> LOEW, 1873	
<i>Tipula (Lunatipula) circumdata</i> SIEBKE, 1863	
<i>Tipula (Lunatipula) decolor</i> MANNHEIMS, 1963	
<i>Tipula (Lunatipula) engeli</i> THEOWALD, 1957	*
<i>Tipula (Lunatipula) fascingulata</i> MANNHEIMS, 1966	*
<i>Tipula (Lunatipula) fascipennis</i> MEIGEN, 1818	*
<i>Tipula (Lunatipula) fuscicosta</i> MANNHEIMS, 1954	
<i>Tipula (Lunatipula) helvola</i> LOEW, 1873	*
<i>Tipula (Lunatipula) heros</i> EGGER, 1863	*
<i>Tipula (Lunatipula) humilis</i> STAEGER, 1840	*
<i>Tipula (Lunatipula) istriana</i> ERHAN and THEOWALD, 1961	
<i>Tipula (Lunatipula) laetabilis</i> ZETTERSTEDT, 1838	*
<i>Tipula (Lunatipula) limitata</i> SCHUMMEL, 1833	*
<i>Tipula (Lunatipula) livida livida</i> VAN DER WULP, 1859	*
<i>Tipula (Lunatipula) lunata</i> LINNAEUS, 1758	*
<i>Tipula (Lunatipula) macroselele macroselele</i> STROBL, 1893	
<i>Tipula (Lunatipula) mellea</i> SCHUMMEL, 1833	*
<i>Tipula (Lunatipula) pannonia pannonia</i> LOEW, 1873	*
<i>Tipula (Lunatipula) peliostigma peliostigma</i> SCHUMMEL, 1833	*
<i>Tipula (Lunatipula) recticornis</i> SCHUMMEL, 1833	**
<i>Tipula (Lunatipula) rufula</i> MANNHEIMS and THEOWALD, 1959	*
<i>Tipula (Lunatipula) soosi soosi</i> MANNHEIMS, 1954	*
<i>Tipula (Lunatipula) truncata truncata</i> LOEW, 1873	*
<i>Tipula (Lunatipula) vernalis</i> MEIGEN, 1804	*
<i>Tipula (Lunatipula) verrucosa verrucosa</i> PIERRE, 1919	*
<i>Tipula (Mediotipula) sarajevensis</i> STROBL, 1898	
<i>Tipula (Mediotipula) siebkei</i> ZETTERSTEDT, 1852	*
<i>Tipula (Mediotipula) stigmatella</i> SCHUMMEL, 1833	*
<i>Tipula (Odonatisca) nodicornis nodicornis</i> MEIGEN, 1818	
<i>Tipula (Platytipula) luteipennis luteipennis</i> MEIGEN, 1830	*

Table. 1 continued. Updated list of Romanian Tipulidae, * - collected by us; ** - first recorded.

Taxon name	Status
<i>Tipula (Pterelachisus) austriaca</i> (POKORNY, 1887)	*
<i>Tipula (Pterelachisus) crassicornis</i> ZETTERSTEDT, 1838	
<i>Tipula (Pterelachisus) crassiventris</i> RIEDEL, 1913	*
<i>Tipula (Pterelachisus) irrorata</i> MACQUART, 1826	*
<i>Tipula (Pterelachisus) luridorostris</i> SCHUMMEL, 1833	*
<i>Tipula (Pterelachisus) neurotica</i> MANNHEIMS, 1966	*
<i>Tipula (Pterelachisus) pabulina</i> MEIGEN, 1818	*
<i>Tipula (Pterelachisus) pauli</i> MANNHEIMS, 1964	*
<i>Tipula (Pterelachisus) plitviciensis</i> SIMOVA, 1962	*
<i>Tipula (Pterelachisus) pontica</i> SAVCHENKO, 1964	
<i>Tipula (Pterelachisus) pseudoirrorata</i> GOETGHEBUER, 1921	
<i>Tipula (Pterelachisus) pseudocrassiventris</i> THEOWALD, 1980	*
<i>Tipula (Pterelachisus) pseudovariipennis</i> CZIZEK, 1912	*
<i>Tipula (Pterelachisus) pseudopruinosa</i> STROBL, 1895	**
<i>Tipula (Pterelachisus) submarmorata</i> SCHUMMEL, 1833	*
<i>Tipula (Pterelachisus) truncorum</i> MEIGEN, 1830	*
<i>Tipula (Pterelachisus) varipennis</i> MEIGEN, 1818	*
<i>Tipula (Savtshenkia) alpha</i> DE JONG, 1994	*
<i>Tipula (Savtshenkia) alpium</i> BERGROTH, 1888	
<i>Tipula (Savtshenkia) benesignata</i> MANNHEIMS, 1954	*
<i>Tipula (Savtshenkia) cheethami</i> EDWARDS, 1924	*
<i>Tipula (Savtshenkia) eleonora</i> THEISCHINGER, 1978	
<i>Tipula (Savtshenkia) gimmerthali gimmerthali</i> LACKSCHEWITZ, 1925	
<i>Tipula (Savtshenkia) goriziensis</i> STROBL, 1893	
<i>Tipula (Savtshenkia) grisescens</i> ZETTERSTEDT, 1851	*
<i>Tipula (Savtshenkia) interserta</i> RIEDEL, 1913	
<i>Tipula (Savtshenkia) invenusta subinvenusta</i> SLIPKA, 1950	*
<i>Tipula (Savtshenkia) limbata</i> ZETTERSTEDT, 1838	*
<i>Tipula (Savtshenkia) obsoleta</i> MEIGEN, 1818	*
<i>Tipula (Savtshenkia) rufina rufina</i> MEIGEN, 1818	
<i>Tipula (Savtshenkia) signata</i> STAEGER, 1840	**
<i>Tipula (Savtshenkia) simulans</i> SAVCHENKO, 1966	*
<i>Tipula (Savtshenkia) subnodicornis</i> ZETTERSTEDT, 1838	*
<i>Tipula (Savtshenkia) subsignata subsignata</i> LACKSCHEWITZ, 1933	*
<i>Tipula (Schummelia) variicornis variicornis</i> SCHUMMEL, 1833	*
<i>Tipula (Schummelia) zonaria</i> GOETGHEBUER, 1921	*
<i>Tipula (Tipula) italica errans</i> THEOWALD, 1984	*
<i>Tipula (Tipula) oleracea</i> LINNAEUS, 1758	*
<i>Tipula (Tipula) orientalis</i> LACKSCHEWITZ, 1930	*
<i>Tipula (Tipula) paludosa</i> MEIGEN, 1830	*
<i>Tipula (Tipula) subcunctans</i> ALEXANDER, 1921	*
<i>Tipula (Vestiplex) excisa carpatica</i> ERHAN and THEOWALD, 1961	*
<i>Tipula (Vestiplex) hemiptera hemiptera</i> MANNHEIMS, 1953	*
<i>Tipula (Vestiplex) hortorum</i> LINNAEUS, 1758	*
<i>Tipula (Vestiplex) montana montana</i> CURTIS, 1834	*
<i>Tipula (Vestiplex) nubeculosa</i> MEIGEN, 1804	*
<i>Tipula (Vestiplex) pallidicosta pallidicosta</i> PIERRE, 1924	*
<i>Tipula (Vestiplex) scripta scripta</i> MEIGEN, 1830	*
<i>Tipula (Yamatotipula) caesia</i> SCHUMMEL, 1833	*
<i>Tipula (Yamatotipula) coerulescens</i> LACKSCHEWITZ, 1923	*
<i>Tipula (Yamatotipula) couckeii</i> TONNOIR, 1921	*
<i>Tipula (Yamatotipula) lateralis</i> MEIGEN, 1804	*

Table. 1 continued. Updated list of Romanian Tipulidae, * - collected by us; ** - first recorded.

Taxon name	Status
<i>Tipula (Yamatotipula) marginella</i> THEOWALD, 1980	*
<i>Tipula (Yamatotipula) montium</i> EGGER, 1863	*
<i>Tipula (Yamatotipula) pierrei</i> TONNOIR, 1921	*
<i>Tipula (Yamatotipula) pruinosa pruinosa</i> WIEDEMANN, 1817	*
<i>Tipula (Yamatotipula) quadrivittata quadrivittata</i> STAEGER, 1840	*
<i>Tipula (Yamatotipula) submontium</i> THEOWALD and OOSTERBROEK, 1981	*

Discussion

The relative high number of new records (5 species) identified since the last published list of Romanian Tipulidae show that the crane flies are still under investigated in our countries. Some species recorded as new by us were collected already in the neighboring countries and the situation should be quite similar in the case of several other species as well. These species are *Tipula (Acutipula) latifurca* VERMOOLEN, 1983; *Tipula (Acutipula) vittata* MEIGEN, 1804; *Tipula (Pterelachisus) pseudopruinosa* STROBL, 1895 and *Tipula (Savtshenkia) signata* STAEGER, 1840. This suggests that the total number of Romanian Tipulidae should be raised further in the future. However a single species, *Tipula (Lunatipula) recticornis* SCHUMMEL, 1833 is not present in neighboring countries, but is a widespread species in large part of Europe.

Together with these new records a total number of 108 species has recent data of documented report in Romania, which represent 82% of the total number of Tipulidae species from here. In the followings we present the updated list of the Romanian Tipulidae (Table 1.).

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