

## Records of new and insufficiently known species of crane flies (Diptera: Tipulidae) in Romania

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### Abstract

Based on personal collections data on adult Tipulidae from Romania new data being obtained for a number of 71 species, seven are new for the country's fauna: *Tipula (Lunatipula) affinis* SCHUMMEL, 1833; *T. (L.) engeli* THEOWALD, 1957; *T. (L.) fasciculata* MANNHEIMS, 1966; *T. (L.) humilis* STAEGE, 1840; *T. (L.) laetabilis* ZETTERSTEDT, 1838; *T. (L.) rufula* MANNHEIMS & THEOWALD, 1959 and *Nephrotoma lamellata* (RIEDEL, 1910). Diagnostic characters of the genitalia of these species are figured. New data on species having a single previous record or rather old data, from the beginning of 1900, are also given.

**Keywords:** new species, new records, Tipulidae, Romania, faunistics

### Introduction

The first synopsis of Romanian Tipulidae was published by ERHAN and THEOWALD in 1961, based on personal collections data (1959) as well on faunistical records from previous publications of KOWARTZ (1873), STROBL (1897) and THALHAMMER (1900). At that time the number of known species where 84. Further some other faunistical data and records of new species for the country's fauna was published by ERHAN (1962,1971,1973,1976,1986), JONG (1994), MANNHEIMS & WEINBERG (1968), THEISCHINGER (1978) and OOSTERBROEK & THEOWALD (1992) completed with 32 new records the total number of known Tipulidae species from Romania. This faunistical data covered only a restricted area in Romania, but came from various habitats, from high altitudes in the Carpathians to marshlands in the Danube Delta. Only a single paper of ERHAN & THEOWALD (1959) detailed the habitat preference and the ecology of two crane flies, *Tipula soosi* and *T. peliostigma*, remaining very scanty the biology and habitat requirement of the majority of tipulids from Romania.

We started to study the crane flies in 1998 and our fieldwork has been extended over whole of Romania. The samplings were done not only by the author, but also by researchers and students from the Department of Zoology, "Babes-Bolyai" University, Cluj, namely dr. László Rákosi, Lucian Teodor, Csongor Czézár, Gábor Erdei and Csaba Péter. All our determinations were made on adults. The larvae of several taxa have not yet been described satisfactory, so we did not use larval data.

### Material and methods

The samples were collected in Aprile-October period. The adult crane flies were caught with daytime sweepings from the vegetation in several sites, parallelly it was used the light collecting ("lighting"), too, which was more fruitful. We used mercury vapour bulbs (160 or 250 W). These lamps were powered by a portable generating set (Honda EM 650 type). The light trap, fitted by a 80 W mercury vapour bulb, was erected nearby the Vala Ierii village, along the Iara river, in the Gilău Mountains. The bulk of our records came from almost unknown mountainous regions, e.g. Bihor Mts., middle part of the Eastern Carpathians, intamountainous depressions (Ciuc and Gheorgheni). Some interesting sites at Suatu and „Fanatele Clujului” Protected Area near Cluj, Transylvania with stepic habitat were investigated, too. Our data came from varous habitats, from different periods, so they are not statistically comparable.

The nomenclature used in the present work is that proposed by OOSTERBROEK & THEOWALD (1992).

The collecting sites with species mentioned in the present work are presented in the fig. 1. The numbers represent the following localities:

1. Arduzel Sat, Transylvania, 200 m a.s.l.
2. Benesat, near the Țicău Gorge, Transylvania, 200 m. a.s.l.
3. Șoimi, Apuseni Mts., 350 m. a.s.l.
4. Stana, beach forest, 500 m. a.s.l, Transylvania

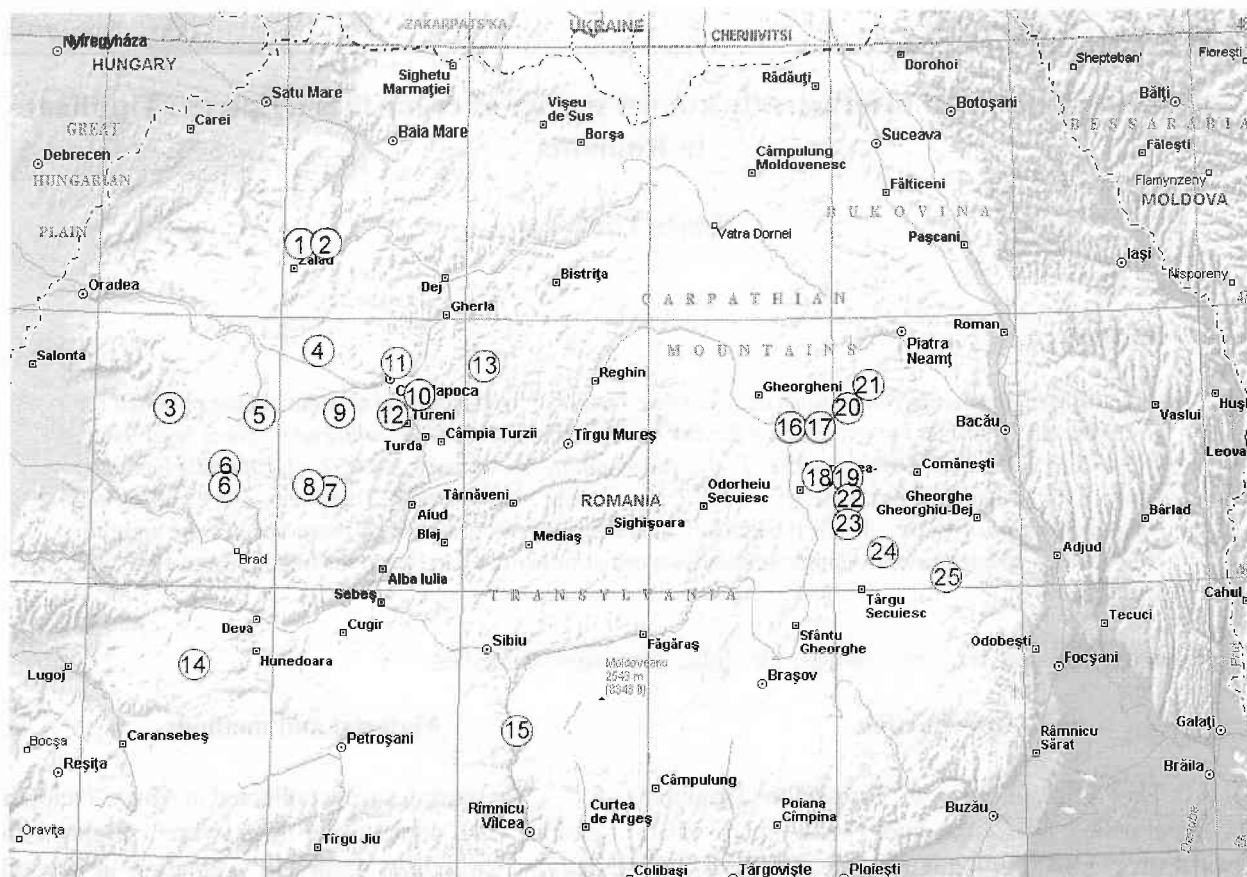


Fig. 1. Collecting sites in the Romanian Carpathians (the numbers indicate localities, see in the text)

5. Vlădeasa Mts, spruce forest, 1400 m. a.s.l.
6. Pasul Vârtop, Bihor Mts., spring sector of Arieș river and mountainous meadows at Vărășoia between 1000-1300 m. a.s.l.
7. Rimetea, Trascău Mts., 800 m. a.s.l.
8. Colțești, Trascău Mts., 750 m. a.s.l.
9. Muntele Baisorii, spruce fir forest, 1360 m. a.s.l.
10. Vâlcele, shrubs vegetation near a beach forest, 450 m. a.s.l.
11. Fânațele Clujului near Cluj, steppic meadows, 350 m. a.s.l.
12. Cheile Turzii, Trascău Mts., limestone gorge, 500 m. a.s.l.
13. Suatu, steppic meadows, 400 m. a.s.l.
14. Vârful Lolaia, Retezat, 1700 m. a.s.l.
15. Stanisoara, Cozia Mts., 800 m. a.s.l.
16. Damp meadows between Senetea, and Suseni, in the Gheorgheni Depression, 675 m. a.s.l.
17. „Dupa Lunca” Protected Area, peat-bog at Voșlobeni, Gheorgheni Depression, 720 m. a.s.l.
18. Luci peat bog, Harghita Mts., 1075 m. a.s.l.
19. Valea Mare, Sâncrăieni, Harghita Mts. 750 m. a.s.l.
20. Balan, Gal Cut, Ciuc Mts, Eastern Carpathians, 800 m. a.s.l.

21. Cheile Bicazului Protected Area, Harghita Mountains, 800 m. a.s.l.
22. Harghita Mts., Eastern Carpathians, 700 m. a.s.l.
23. Siculeni, damp meadows, Ciuc Depression, 640 m. a.s.l.
24. Benes peat bog, Tușnad Sat, 620 m. a.s.l.
25. Oitoz, Nemira Mountains, 750 m. a.s.l.

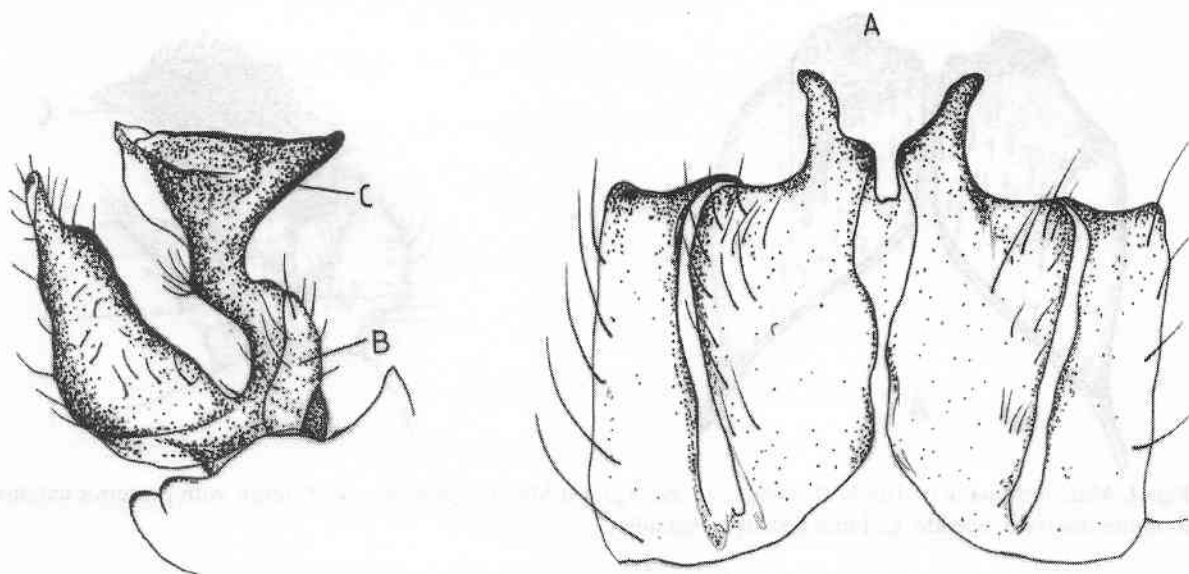
## Result and discussion

Between 1998 and 2002, a number of 71 species were collected, which represent 61,20% of whole Romanian crane flies fauna; between them a large number of species are new, rare or simply undercollected species.

Below we present data about seven new species for the Romanian fauna:

### *Tipula (Lunatipula) affinis* SCHUMMEL, 1833

♂, spring sector of the Mureș river, Senetea, Voșlobeni, Gheorgheni Depression, the Eastern Carpathians, May 25, 2002, Ujvárosi L. leg. It was swept from the vegetation in damp meadows near Mureș river. Details in male genitalia are presented



**Fig. 2.** Male terminalia of *Tipula (Lunatipula) affinis* SCHUMM. (details) . A. 9<sup>th</sup> tergite with posterior extensions, B. Outer dististyle, outside, C. Inner dististyle, outside.

in fig. 2.

According to DUFOUR (1986) it is a locally common species, distributed in central, northern and eastern part of Europe. The flight period is between May and July. The single specimen captured by us show affinities with humid, damp areas near water courses.

*Tipula (Lunatipula) engeli* THEOWALD, 1957

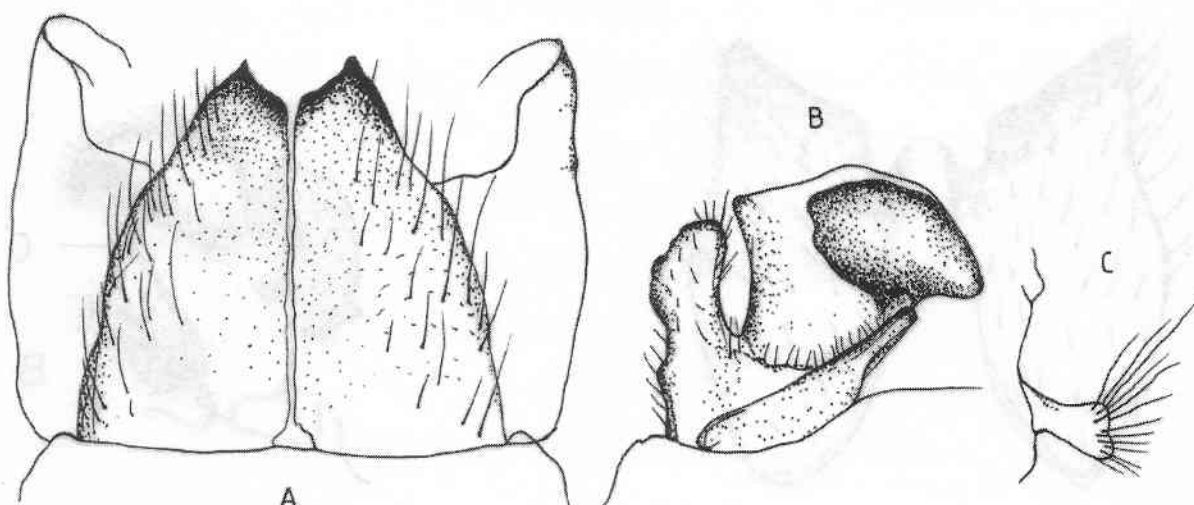
♂, dried, in a spider net inside a building, Arduzel Sat, Transylvania. Ujvárosi L. leg. Few data were published about the habitat requirement of these rather rare and local species. The collecting data in August 1, 2002 say nothing about the

biology of this species. Details on male genitalia are presented in fig. 3.

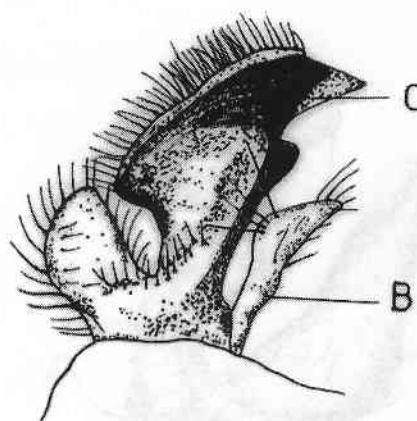
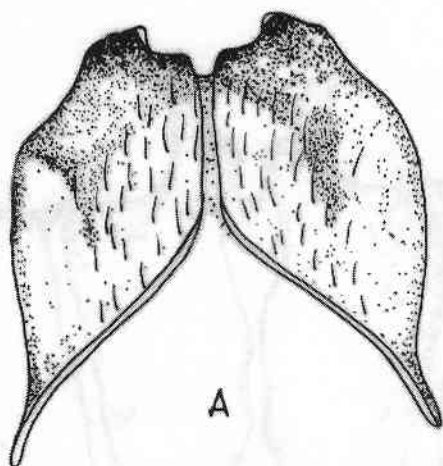
According to THEOWALD (1980) the adults are active in May and June. The distribution of this species covers the southern part of Europe, mostly the Balkan region. Up to the present it was recorded from the following countries: Albania, Greece, Italy, Spain and Yugoslavia (OOSTERBROEK & THEOWALD, 1992). The habitat and distribution of this species in Romania must be investigated in the future.

*Tipula (Lunatipula) fascingulata* MANNHEIMS, 1966

♂, Poiana Vărășoia, Padiș Porotected



**Fig. 3.** Male terminalia of *Tipula (Lunatipula) engeli* THEOW. (details) . A. 9<sup>th</sup> tergite with posterior extensions, B. Inner dististyle, outside, C. Outer dististyle, outside.



**Fig. 4.** Male terminalia of *Tipula (Lunatipula) fasciculata* MANNH. (details) . A. 9<sup>th</sup> tergite with posterior extensions, B. Outer dististyle, outside, C. Inner dististyle, outside.

Area, Bihor Mts., at 1300 m a.s.l., July 21, 1999, Ujvárosi L. leg., swept by net from the vegetation near by Vărășoia lake. Details in male genitalia are presented in fig. 4.

It is a mountainous species distributed in Europe in central and southern regions, like Albania, Bulgaria, Hungary, France (Alps), Greece, Italy, Slovakia, Switzerland (south), Yugoslavia (OOSTERBROEK & THEOWALD 1992). The flight period is between July and October (DUFOR 1986).

*Tipula (Lunatipula) humilis* STAEGER, 1840

2 ♂♂, Siculeni, Ciaracio, Ciuc Depression, Eastern Carpathians, 640 m a.s.l., July 15, 2001, Ujvárosi L. leg., lighting near a mountainous brook.

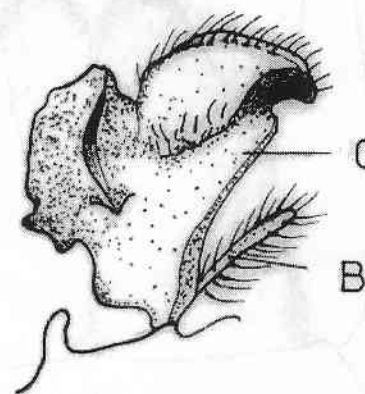
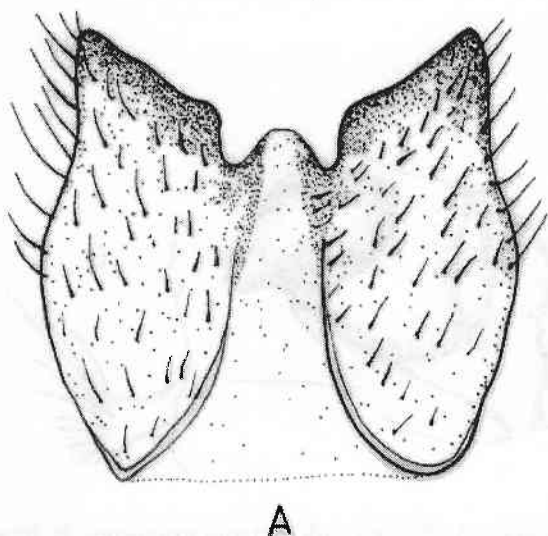
6 ♂♂, Senetea, Voșlobeni, Gheorgheni Depression, Eastern Carpathians, 650 m a.s.l., July

5, 2002, Ujvárosi L. leg., swept by the vegetation in a damp meadows.

2 ♂♂, Suseni, Gheorgheni Depression, Eastern Carpathians, 600 m a.s.l., July 7, 2002, Ujvárosi L. leg., sweep by the vegetation in a damp meadows near Mureș river.

3 ♂♂, După Luncă" Natural Reserve area, eutrophic bogs, Voșlobeni, Gheorgheni Depression, Eastern Carpathians, 620 m, swept from alders near a mountainous brook in peat bog, July 11, 2002, Ujvárosi L. leg. Details in male genitalia are presented in fig. 5.

The species is present often in damp meadows near by mountainous brooks in the Eastern Carpathians. Based on this observation we consider a common species in Romania, in concordance with the literature data, where it is mentioned like a common species in the northern and western part of the palearctic region (Czech Rep., Denmark,



**Fig. 5** Male terminalia of *Tipula (Lunatipula) humilis* STAEG. (details) . A. 9<sup>th</sup> tergite with posterior extensions, B. Outer dististyle, outside, C. Inner dististyle, outside.

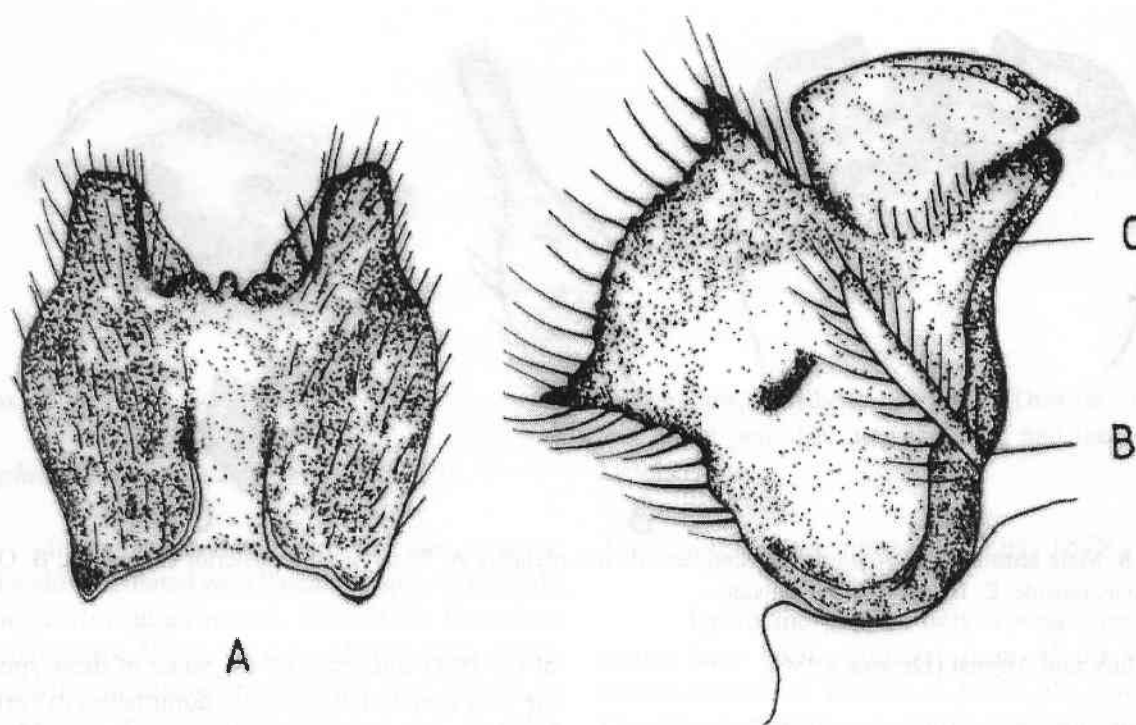


Fig. 6. Male terminalia of *Tipula (Lumatipula) laetabilis* ZETTERST. (details). A. 9<sup>th</sup> tergite with posterior extensions, B. Outer dististyle, outside, C. Inner dististyle, outside.

Finland, Slovakia, Sweden, Estonia, Lithuania, Ukraina, Gruzija, Armeniya, Azerbaydzhan, Russia) (OOSTERBROEK & THEOWALD 1992).

*Tipula (Lumatipula) laetabilis* ZETTERSTEDT, 1838

Syn. *dilatata* SCHUMMEL, 1833; *nigroannulata* STROBL, 1895; *amicorum* MANNHEIMS & THEOWALD 1959

♂, Suatu, Transylvania, August 3, 1998, light trapped in steppic meadow in Protected Area. Details in male genitalia are presented in fig. 6.

It is a widespread European species, recorded from a large number of countries: Austria, Belgium, Bulgaria, Czech Rep., Denmark, Finland (except north), France, Germany, Great Britain, Greece (north), Hungary, Italy (north), Luxembourg, Netherlands, Norway (except north), Poland, Portugal, Slovakia, Sweden (except north), Switzerland, Yugoslavia (Serbia), Estonia, Lithuania, Ukraina, Kazakhstan (southeast), Russia (OOSTERBROEK & THEOWALD 1992), but the biology is largely unknown. According to OOSTERBROEK & JONG (2001) it prefer humid woodlands and woods or shrub covered riversides and lake shores. The flight period

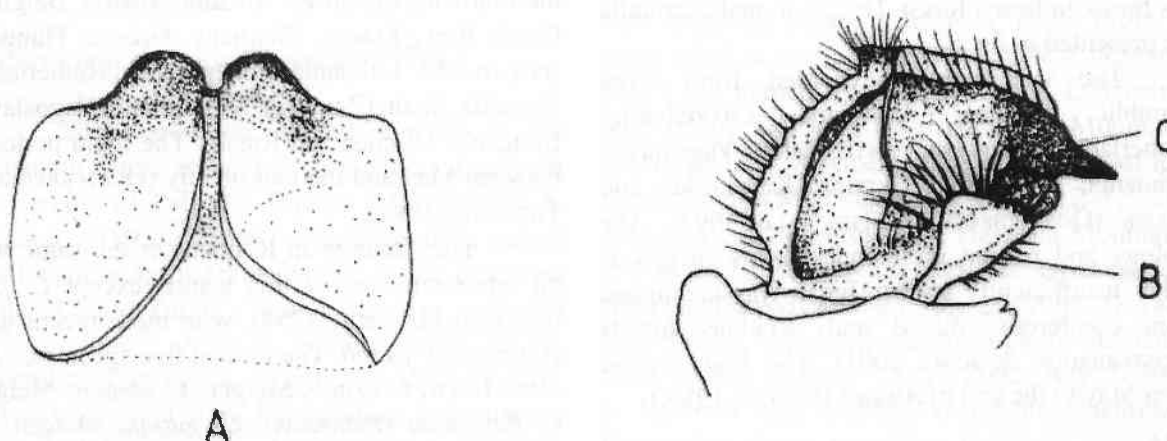


Fig. 7. Male terminalia of *Tipula (Lumatipula) rufula* MANNIL. & THEOW. (details). A. 9<sup>th</sup> tergite with posterior extensions, B. Outer dististyle, outside, C. Inner dististyle, outside.



second locality with steppic meadows, in the Suatu Protected Area, where it was collected with light trap a single male at August 4, 1998. In Europe it is common and wide spread specie, with flight period between Mays to August (DUF0UR 1986).

*Tipula (Lunatipula) vernalis* MEIGEN, 1804

It is a same situation with *T. (L.) fascipennis*, up to the present it was published a rather old previous record from Oradea (THALHAMMER, 1900), but we collected it in a large number of localities between 2001 and 2002. Numerous specimens was collected in secondary meadows from the following localities: Panticeu, 400 m, damp meadows near by beach forest, 5 ♂♂, May 1, 2001, L. Ujvárosi leg. Stana, little brook valey in the beach forest, ♂, May 31, 2001, L. Ujvárosi leg., Baciului Gorge, near Cluj, ♂, May 19, 2002, Cs. Czézár & Cs. Péter leg., Suseni, damp meadows near by the Mureş river, 3 ♂♂, ♀; May 25, 2002, L. Ujvárosi leg., Senetea, Voşlobeni, Gheorgheni Depression, 40 ♂♂, 28 ♀♀; May 25-27, 2002, L. Ujvárosi leg.

It is a very common and widely distributed species in Europe, present in various habitats from 200 to 1000 m, sometimes in higher altitudes too. The flight period is between May and middle of August (DUF0UR 1986).

*Tipula (Mediotipula) siebkei* ZETTERSTEDT, 1852

Up to the present this rare European species have had no precized Romanian collected data, mentioned only in the Catalog of Palearctic Diptera (OOSTERBROEK AND THEOWALD, 1992). The presence of this species in the Romanian fauna is now confirmed by us, with two localities: Rimetea, Trascău Mountains, ♂, May 5, 2000, collect by lamp, L. Ujvárosi leg.; Stănişoara, Cozia Mountains, 2 ♂♂, collect by lamp, L. Rákosi leg.

In Europe is mentioned the following countries: Austria, Belgium, Denmark, France, Great Britain (south), Greece (north, central), Italy, Luxembourg, Norway (south), Slovakia, Spain (north), Sweden (south), Switzerland, Yugoslavia. The flight period is between middle of May and middle of August (OOSTERBROEK AND THEOWALD 1992, DUF0UR 1986).

*Tipula (Platytipula) luteipennis* MEIGEN, 1830

Mentioned in 1961 by ERHAN & THEOWALD from the Comana forest in Dobrogea. Sice that

single record no recent data have been published up to the present. It was collected by us a single male at 1000 m a.s.l. in the Vârtop Pass, Apuseni Mountains, August 5, 1999. Acording to the literature data it is a rare species in Europe, but could be local more abundant and it was mentioned from Central Asia, too (DUF0UR 1986).

*Tipula (Pterelachisus) luridirostris* SCHUMMEL, 1833

Synonyms: *flavirostris* Staeger, 1840; *brevicornis* Lundstrom, 1912

It is known in Romania from a single locality only, from Piertrosul Mountains, without any other specification (ERHAN & THEOWALD, 1961). No other detail have been published up to the present about the habitat requirement and biology of this species. Acording to DUF0UR (1986) the species can be captured mostly with light trap method, adults having nocturanl activity. The single male captured by us in a damp meadow in shrub vegetation at Siculeni, Ciuc Depression was collected with light, too in July 15, 2002.

Up to the present this rare European species have been collected from the following countries: Austria, Czech Rep., Denmark, Finland, Germany, Great Britain, Hungary, Italy (north), Norway, Poland, Slovakia, Sweden, Switzerland, Yugoslavia, Estonia, Lithuania, Byelorussia, Ukraina, Russia and Mongolia (OOSTERBROEK & THEOWALD 1992).

*Tipula (Pterelachisus) plitviciensis* SIMOVA, 1962

A relative recent described species by Simova, from former Yugoslavia, futher it was mentioned from several countries: Albania, Austria (Gimbach), Bulgaria, Greece (north), Slovakia, Yugoslavia (OOSTERBROEK & THEOWALD, 1992). It was known in Romania from a single locality only, from Băile Herculane, where it was colleected in May two males (ERHAN, 1971). No details was published about biology and ecology of this species. We collected two males at April 20, 2002 in the calcarous gorge "Cheile Turzii" Protected Area, Trascău Mts., mountains with the most abundant superficial carstic fenomena in Romania, a refugial ecosystem for a number of termophylous insects in Transylvania. Nothing we know about the biology, but based on Romanian data, the flight period can be estimated to be in the spring, early summer.

*Tipula (Savtshenkia) benesignata* MANNHEIMS, 1963

A single record of this species have been published up to the present, from Gura Zlata, Retezat Mountains, at 750 m a.s.l. in beach forest (ERHAN, 1986). We mention this autumnal species from Vlădeasa Mountains, at 1450 m a.s.l., in coniferous forest, where it was collected two males at October 20, 2001 by Cs. Czézár and Cs. Péter.

It is a widely distributed species, present in Europe as well in Asia, mentioned from the following countries: Austria, Belgium (Ardennes), Czech Rep., Finland, France (Alps, Auvergne), Germany, Greece, Hungary, Italy (Alps, Emilia-Romagna), Luxembourg, Norway (south), Slovakia, Sweden, Switzerland, Yugoslavia (north, Durmitor); Ukraine, Kirgiziya (Tien Mts) (OOSTERBROEK & THEOWALD 1992).

*Tipula (Savtshenkia) limbata* ZETTERSTEDT, 1838

Synonym: *vafra* RIEDEL, 1913; *cupida* ALEXANDER, 1934

Recorded only from "Cheile Turzii" Protected Area from Romania, up to the present no further data have been published about this species (ERHAN, 1971). We can add here a second one, from Vlădeasa Mountains, where we collected 3 ♂♂, 2 ♀♀ at October 20, 2001 in a spruce-fir forest, along a mountainous brook, with stones covered with mosses.

According to Dufour it is a common and widely distributed species, with flight period between September and October (DUFOR, 1986). Up to the present it was mentioned from the following countries: Austria, Belgium, Czech Rep., Denmark, Finland, Germany, Great Britain, Norway, Slovakia, Sweden, Switzerland, Lithuania, Ukraine; Russia (OOSTERBROEK & THEOWALD 1992).

*Tipula (Savtshenkia) obsoleta* MEIGEN, 1818

Synonym: *clandestina* MEIGEN, 1818.

The single previous record was published by ERHAN & THEOWALD in 1961 from Câmpina, Muntenia. We have been collected other specimens, one male near a small brook in the Valea Mare Valley, Sâncrăieni, Harghita mountains, at 800 m a.s.l. at November 1, 2000 and an other male from the peat bog "Benes" Protected Area, near Tușnad Sat, Ciuc Depression, at October 13, 2002.

Up to the present it was mentioned from the

following countries: Austria, Belgium, Czech Rep., Denmark, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovakia, Spain (Pyrenees), Sweden, Switzerland, Yugoslavia, Lithuania, Byelorussia, Ukraine, Gruzija, Russia, Turkey (OOSTERBROEK & THEOWALD, 1992). The flight period is between September and middle November.

*Tipula (Savtshenkia) subnodicornis* ZETTERSTEDT, 1838

Listed for Romania by ERHAN & THEOWALD (1961), based on three males and two females collected at Bolboci, Bucegi Mountains, the Southern Carpathians. We collected a single male in a mountainous peat bog, "Luci" Protected Area, at 1100 m a.s.l. in Harghita mountains at June 10, 2001. According to OOSTERBROEK & JONG (2001) the biotops of this species are wet open habitats such as fens, moorlands, river banks, marshes and slopes, along plant-filled ponds, subalpine and alpine meadows. The flight period is from April to September.

It is a subalpine species (DUFOR, 1992), mentioned from the following countries: Austria, Belgium, Bulgaria, Czech Rep., Denmark, Finland, France (Alps, Auvergne, Pyrenees), Germany, Great Britain, Ireland, Italy (north), Netherlands, Norway, Slovakia, Sweden, Switzerland, Yugoslavia (Slovenia, Serbia); Lithuania, Ukraine, Russia, Yugoslavia (Slovenia, Serbia) (OOSTERBROEK & THEOWALD 1992).

*Tipula (Savtshenkia) subsignata*, LACKSCHEWITZ, 1838

The single old record of this species have based on a single male collected from Galbena Valley, Bihor Mountains. We collected from Vlădeasa Mountains 3 ♂♂, 2 ♀♀ in October 20, 2000. In Europe it was collected from several countries, like Austria, Bulgaria, Czech Rep., France (Alps), Germany, Italy (north, Apennines), Greece (Timfi Mts), Slovakia, Switzerland, Yugoslavia (Montenegro), Ukraine, Gruzija, Russia (OOSTERBROEK & THEOWALD, 1992). In Switzerland is a common and relatively wide distributed species (DUFOR, 1986). As it was mentioned by OOSTERBROEK & JONG (2001) the majority of the species belong to the subgenus *Tipula (Savtshenkia)* are undercollected, because of the less agreeable weather conditions during their flight period in the autumn.

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