

Article

Contribution to the Knowledge of Cylindrotomidae, Pediciidae and Tipulidae (Diptera: Tipuloidea): First Records of 86 Species from Various European Countries

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Abstract: The superfamily Tipuloidea contains the following crane fly families: Cylindrotomidae, Limoniidae, Pediciidae and Tipulidae, with 1267 species known in Europe. Recent studies have increased our knowledge regarding these families substantially, but crane flies still represent an understudied group, even in Europe. A previous paper focused on European Limoniidae, summarizing the faunistic and taxonomic papers concerning the family between 2010 and 2020, and reported additional new country records. In this study, the focus is on the other three crane fly families: Cylindrotomidae, Pediciidae and Tipulidae, summarizing taxonomic and faunistic studies concerning these families in Europe between 2010 and 2022. Also presented are 204 occurrence records belonging to one Cylindrotomidae, 23 Pediciidae and 62 Tipulidae species, which represent first country records from various European countries: three from Albania, three from Belarus, one from Belgium, three from Bosnia and Herzegovina, 13 from Bulgaria, two from Cyprus, two from Denmark, three from Estonia, one from Finland, two from Greece, three from Italy, one from Montenegro, one from North

Macedonia, six from Norway, six from Poland, four from Portugal, seven from Serbia, four from Slovenia, two from Spain and one from Sweden, and three from the European territory of Russia. In addition of species known already from Russia, six are presented as new from Central European Russia, 26 from East European Russia, six from North Caucasus and six from North European Russia.

Keywords: biodiversity; Catalogue of the Crane flies of the World; collection data; database; fauna; terminalia photos

1. Introduction

Crane flies (Tipuloidea) is a globally-distributed dipteran group, with more than 15,680 valid species and subspecies. The superfamily is divided into four families (Cylindrotomidae, Limoniidae, Pediciidae and Tipulidae [1]) and is represented by 1267 species in Europe [2].

A preceding study [3] focused on the European Limoniidae, adding new country records for 244 species, thereby demonstrated that our knowledge on the distribution of European crane flies is still incomplete. The present study is the second part of the summarization of the faunistic and taxonomic studies of European crane flies between 2010 and 2022, and is focusing on the other three crane fly families: Cylindrotomidae, Pediciidae and Tipulidae. Additional occurrence data, that represent first country records, are also presented.

Cylindrotomidae, the so-called long-bodied crane flies, is the smallest crane fly family, with 67 species worldwide and only seven species known to occur in Europe [2]. Larvae feed on living tissue of angiosperms (*Cylindrotoma* Macquart) or of mosses (*Diogma* Edwards, *Triogma* Schiner and *Phalacrocer* Schiner) [4]. Despite the low number of European species and the fact that the unique appearance and biology of the larvae have attracted the attention of biologists and amateur entomologists for a long time, the distribution of the species is still far from well known. No new species are described in the period 2010–2022. Rather, to the contrary, two nominal species/subspecies related to *Cylindrotoma distinctissima* (Meigen, 1818) have been synonymized with the nominative subspecies [5,6], thus decreasing the number of European Cylindrotomidae species-group taxa from nine to seven.

Pediciidae, or hairy-eyed crane flies, is a relatively small family compared to Limoniidae or Tipulidae, with 498 recognized species worldwide and 73 species in Europe [2]. The known larvae of the subfamily Pediciinae are aquatic/semi-aquatic and predaceous, while those of Ulinae (*Ula* Haliday) are terrestrial and fungivorous [7,8]. Many species are associated with headwaters and mountain streams. In the last decade, four new species from Europe have been described (Table 1).

Tipulidae, or long-palped crane flies, contain the largest and most conspicuous species of the European crane flies. More than 4345 valid species are known worldwide, and 522 species and subspecies from Europe have thus far been reported [2]. Larvae are mainly detritivores, saproxylic or herbivorous and occur in a wide range of habitats, from aquatic (e.g., *Prionocera* Loew and the subgenus *Arctotipula* Alexander of *Tipula* Linnaeus), to semi-aquatic (e.g., the subgenera *Yamatotipula* Matsumura and *Acutipula* Alexander of *Tipula*) and to drier habitats (e.g., the subgenus *Lunatipula* Edwards of *Tipula*). The Mediterranean is the most species-rich region in Europe, dominated by the subgenus *Lunatipula*, that contains ~40% of the European Tipulidae species. Six new species of Tipulidae from Europe have been described between 2010 and 2022 (Table 1).

Table 1. List of Pediciidae and Tipulidae species described from Europe between 2010 and 2022.

Species	Publication	Distribution
<i>Pedicia (Amalopsis) fusca</i> Ujvárosi & Bálint, 2012	[9]	Bulgaria, Czech Rep., France, Romania, Slovakia, Ukraine, Switzerland
<i>Pedicia (Crunobia) carpiatica</i> Kolcsár, Keresztes & Dénes, 2016	[10]	Romania
<i>Pedicia (Crunobia) costobocica</i> Kolcsár, Keresztes & Dénes, 2016	[10]	Romania
<i>Pedicia (Crunobia) roxolanica</i> Kolcsár, Keresztes & Dénes, 2016	[10]	Romania
<i>Dolichopeza (Dolichopeza) bifida</i> Oosterbroek & Lantsov, 2011	[11]	Austria, Czech Rep., Finland, Germany, Lithuania, Norway, Sweden, Switzerland, Ukraine, Russia: RUN ¹ , RUW ¹ and West Siberia
<i>Tipula (Lunatipula) eleniya</i> Lantsov & Pilipenko, 2021	[12]	Russia: NC ¹
<i>Tipula (Lunatipula) poelli</i> Vogtenhuber, 2012	[13]	Greece
<i>Tipula (Lunatipula) spetai</i> Vogtenhuber, 2012	[13]	Greece
<i>Tipula (Mediotipula) gjipeensis</i> Keresztes & Kolcsár, 2018	[14]	Albania
<i>Tipula (Pterelachisus) recondita</i> Pilipenko & Salmela, 2012	[15]	Finland, Russia: Far East

¹ Abbreviations used for European territories of Russia are explained in Materials and Methods.

Table 2 lists papers from the period 2010–2022 that report at least one Cylindrotomidae, Pediciidae or Tipulidae species for the first time from a European country (geopolitical unit), and the number of reported species.

Table 2. List of European countries with summarized list of publications reporting new country records during the period 2010–2022; the numbers of newly reported species, including species reported in this publication; the total number of species known from each country, including the new records.

Country	Families	Publications with New Country Record(s) during the Period 2010–2022	No. of Species Reported as New during the Period 2010–2022	No. of Species Reported as New in This Article	Total No. of Species Including the New Records
Albania	Cyl				0
	Ped	[16]	1		8
	Tip	[14]	2	3	57
Andorra	Cyl				0
	Ped	[17]	1		5
	Tip	[17]	1		47
Austria	Cyl				4
	Ped	[18]	2		40
	Tip	[19,20]	8		145
Belarus	Cyl	[6]	1		3
	Ped	[21]	1	3	6
	Tip	[22]	1		73
Belgium	Cyl				4
	Ped		1		16
	Tip	[23]	2	1	98
Bosnia and Herzegovina	Cyl				0
	Ped	[16]	1		7
	Tip			3	79
Bulgaria	Cyl	[24]	1		1
	Ped	[9,25]	2	1	27
	Tip	[25,26]	4	12	99

Table 2. Cont.

Country	Families	Publications with New Country Record(s) during the Period 2010–2022	No. of Species Reported as New during the Period 2010–2022	No. of Species Reported as New in This Article	Total No. of Species Including the New Records
Croatia	Cyl				1
	Ped	[27]	4		8
	Tip	[28]	1		90
Cyprus	Cyl				0
	Ped				1
	Tip			2	18
Czech Republic	Cyl				4
	Ped	[9,29]	2		40
	Tip	[11]	1		128
Denmark	Cyl				4
	Ped				15
	Tip			2	86
Estonia	Cyl				4
	Ped			3	9
	Tip				82
Finland	Cyl				6
	Ped				19
	Tip	[15,30–33]	5	1	118
France	Cyl				4
	Ped	[34–37]	6		37
	Tip	[38–46]	13		183
Germany	Cyl				4
	Ped				37
	Tip	[47–52]	8		142
Greece	Cyl				0
	Ped	[16]	2	1	7
	Tip	[13]	2	1	169
Hungary	Cyl				2
	Ped	[53,54]	3		15
	Tip	[54]	3		81
Iceland	Cyl				0
	Ped				1
	Tip				4
Ireland	Cyl				3
	Ped				15
	Tip				57
Italy	Cyl				3
	Ped				35
	Tip			3	182
Kosovo	Cyl				0
	Ped				0
	Tip	[55]	1		1
Latvia	Cyl	[6]	1		2
	Ped				10
	Tip	[11]	1		61
Liechtenstein	Cyl				0
	Ped				0
	Tip	[56,57]	24		24

Table 2. Cont.

Country	Families	Publications with New Country Record(s) during the Period 2010–2022	No. of Species Reported as New during the Period 2010–2022	No. of Species Reported as New in This Article	Total No. of Species Including the New Records
Lithuania	Cyl Ped Tip	[8]	1		4 17 96
Luxembourg	Cyl Ped Tip	[16,58]	2		2 5 75
Malta	Cyl Ped Tip				0 0 4
Moldova	Cyl Ped Tip				0 0 2
Montenegro	Cyl Ped Tip	[16] [26]	2	1	0 10 77
Netherlands	Cyl Ped Tip	[59]	1		4 12 89
North Macedonia	Cyl Ped Tip	[16] [55]	2 2	1	0 7 104
Norway	Cyl Ped Tip	[60] [61–63]	1 12	1 5	5 19 112
Poland	Cyl Ped Tip	[64,65] [50,66]	2 6	2 4	4 34 102
Portugal	Cyl Ped Tip	[67] [68–70]	1 14	4	0 7 61
Romania	Cyl Ped Tip	[24] [9,10,71] [72,73]	1 10 8		3 43 132
Russia: RUC	Cyl Ped Tip	[74,75] [75] [75–77]	2 1 1	5 1	5 14 100
Russia: RUE	Cyl Ped Tip	[78]	1	4 22	4 16 62
Russia: RUN	Cyl Ped Tip	[79] [80–82]	1 5	2 4	5 17 108
Russia: RUW	Cyl Ped Tip	[83]			5 14 84
Russia: RUS	Cyl Ped Tip	[78]	1		1 1 31

Table 2. Cont.

Country	Families	Publications with New Country Record(s) during the Period 2010–2022	No. of Species Reported as New during the Period 2010–2022	No. of Species Reported as New in This Article	Total No. of Species Including the New Records
Russia: NC	Cyl				2
	Ped			2	18
	Tip	[12,84–89]	6	4	76
Serbia	Cyl	[90]	1		1
	Ped			5	13
	Tip			2	94
Slovakia	Cyl				3
	Ped	[9,91]	2		43
	Tip				124
Slovenia	Cyl			1	1
	Ped			1	12
	Tip			2	90
Spain	Cyl	[92]	1		2
	Ped	[93–96]	5	2	16
	Tip	[96–102]	8		161
Sweden	Cyl				5
	Ped	[103]	1	1	18
	Tip	[104–106]	3	1	131
Switzerland	Cyl				4
	Ped	[9]	1		36
	Tip	[107,108]	2		154
Turkey (European part)	Cyl				0
	Ped	[109]	4		5
	Tip	[110]	9		45
Ukraine	Cyl				2
	Ped	[111,112]	2		30
	Tip				121
United Kingdom	Cyl				4
	Ped				20
	Tip				87

This paper reports first records of Cylindrotomidae, Pediciidae and Tipulidae species from various European countries. Some records are already present in the Catalogue of the Crane flies of the World (CCW, <https://ccw.naturalis.nl/index.php>) (accessed on 31 December 2022), based on personal information sent/forwarded to Pjotr Oosterbroek, and these are referred to as *in litt.* in the CCW as they have not yet been made available in scientific publications with an indication of exact location. In total, 204 occurrence records belonging to 86 species are presented in this study.

2. Materials and Methods

2.1. Geographic Coverage

The geopolitical unit conception as presented by [3] follows Fauna Europaea [113] and CCW [2] (Figure 1). The Fauna Europaea concept is now implemented in the CCW for all four families of crane flies and the further subdivision of the European part of Russia into territories can be found in the CCW Manual. In the *Material examined*, ‘Province’ is used in place of ‘Oblast’ administrative unit of the Russian Federation and Belarus and ‘Territory’ for ‘Krai’ of the Russian Federation.

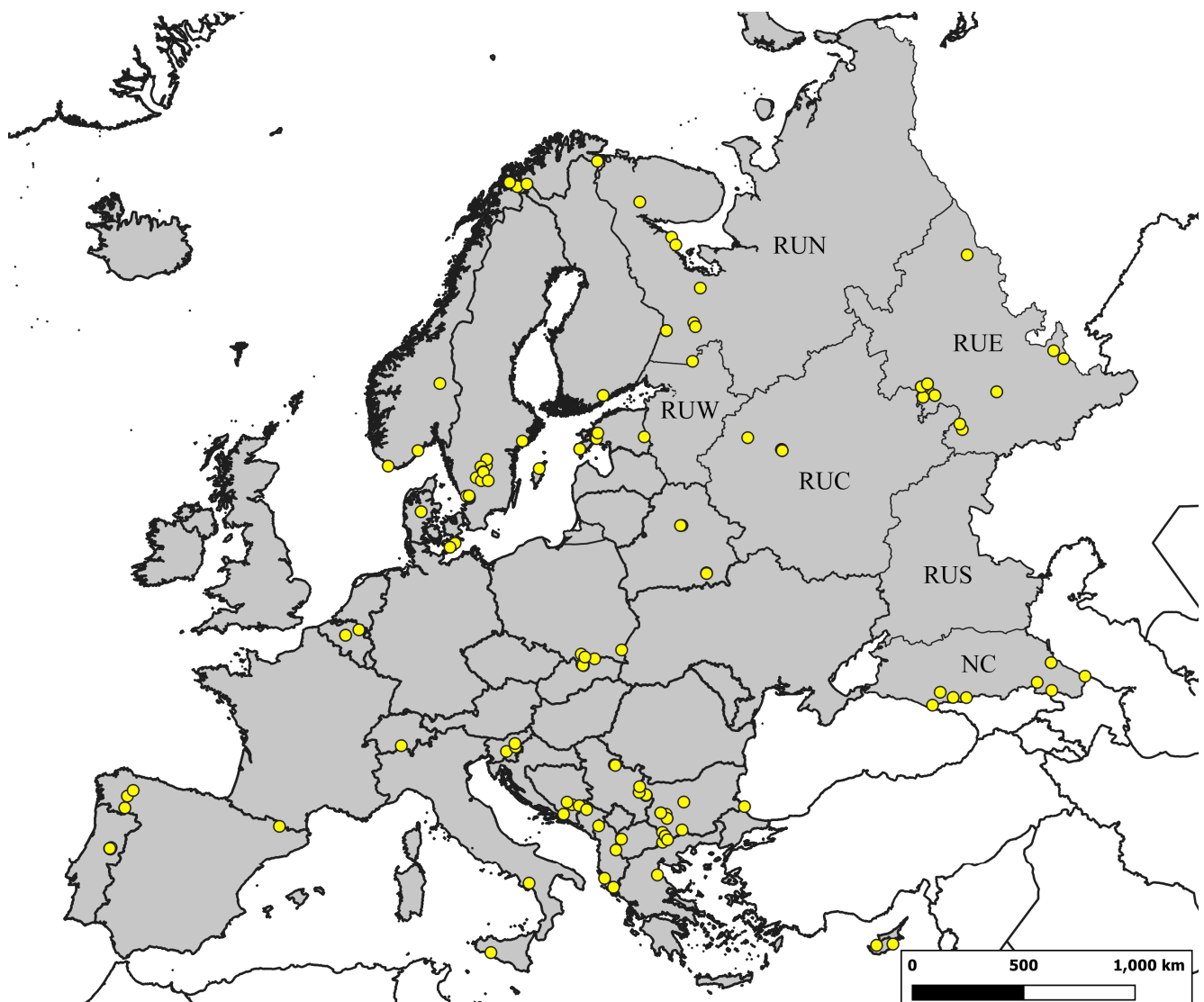


Figure 1. Geopolitical units of Europe according to the CCW, with sampling localities reported in this study.

Abbreviations used for European territories of Russia (Figure 1):

RUN—North European Russia
RUW—Northwest European Russia
RUC—Central European Russia
RUE—East European Russia
RUS—South European Russia
NC—North Caucasus

2.2. Sampling Methods and Identification

The preserved material has been collected using sweep- or hand-netting, trapped using Malaise traps, light traps or trunk emergence traps, or reared from fruiting bodies of macrofungi. The specimens are pinned and dry preserved, or stored in ethanol and deposited in various public or private collections (see below). Some records are based on field observations or photographs (some of these photos are included in this publication and are also available in CCW). The material is identified by the authors and the identifier(s) are responsible for the corresponding records. Photographs of terminalia and wing of some rare species are also presented.

Collection data are available in Darwin Core format in the supplementary Table S1, with additional information if available (e.g., catalog numbers, habitat, sampling and preparation methods). Coordinates are presented in decimal degrees (DD). Dates follow the DD/MMM/YYYY or DD/MMM-DD/MMM/YYYY format.

Higher-level phylogenetic classification follows [1] and species-level taxonomic classification follows [2].

2.3. The Studied Specimens Are Deposited in the Following Collections

ACCY—Aristophanous Collection, Cyprus.

CKLP—Private Collection of L.-P. Kolcsár, Budapest, Hungary.

DIZH UŁ—Department of Invertebrate Zoology and Hydrobiology, University of Łódź, Poland.

FRIP—Forest Research Institute, Petrozavodsk, Russia.

ISEA—Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków, Poland.

IZBE—Institute of Agricultural and Environmental Sciences, Estonian University of Life Sciences (former Institute of Zoology and Botany), Tartu, Estonia.

LMM—Regional Museum of Lapland, Rovaniemi, Finland.

MHNN—Musée d'Histoire Naturelle de Neuchâtel, Neuchâtel, Switzerland.

MZL—The Cantonal Museum of Zoology, Lausanne, Switzerland.

NBCN—Naturalis Biodiversity Center in Leiden, The Netherlands.

NHMD—Natural History Museum of Denmark, Copenhagen, Denmark.

NHMO—Natural History Museum, University of Oslo, Oslo, Norway.

NHRS—Swedish Museum of Natural History, Stockholm, Sweden.

NTNU-VM—Vitenskapsmuseet, Norwegian University of Science and Technology, Trondheim, Norway.

PCCQ—Private Collection of C. Quindroit, Angers, France.

PCJS—Private Collection of J. Starý, Olomouc, Czechia.

PCKMO—Private Collection of K.M. Olsen, Norway.

PCML—Private Collection of M. Lindström, Sweden.

PCMS—Private Collection of M. Syratt, Kraków, Poland.

PCWG—Private Collection of W. Gritsch, Copenhagen, Denmark.

USC—Zoology Department, University of Santiago de Compostela, Spain.

VPMC—Private Collection of V.E. Pilipenko, Moscow, Russia.

ZIN—Zoological Institute, Russian Academy of Sciences, St Petersburg, Russia.

ZMMU—Zoological Museum of Moscow State University, Moscow, Russia.

3. Results

List of Species Reported for the First Time from Various European Countries

Some records are based on field observations or photographs, and the specimens have not been deposited in a collection. These records are marked with an asterisk (*).

Family Cyldrotomidae

1. *Cylindrotoma distinctissima* (Meigen, 1818)

Material examined: Slovenia: Stara fužina, Brda, 1700 m; 46.312501°, 13.781063°; 2 July 2022; 1 male; C. Quindroit leg.; C. Quindroit det.; PCCQ. *Slovenia: Grosuplje, 400 m; 45.91022°, 14.7142°; 18 May 2015; 1 male; N. Pisec photographed; L.-P. Kolcsár det.

Comments: First records from Slovenia. The habitus of male illustrated in Figure 2A.

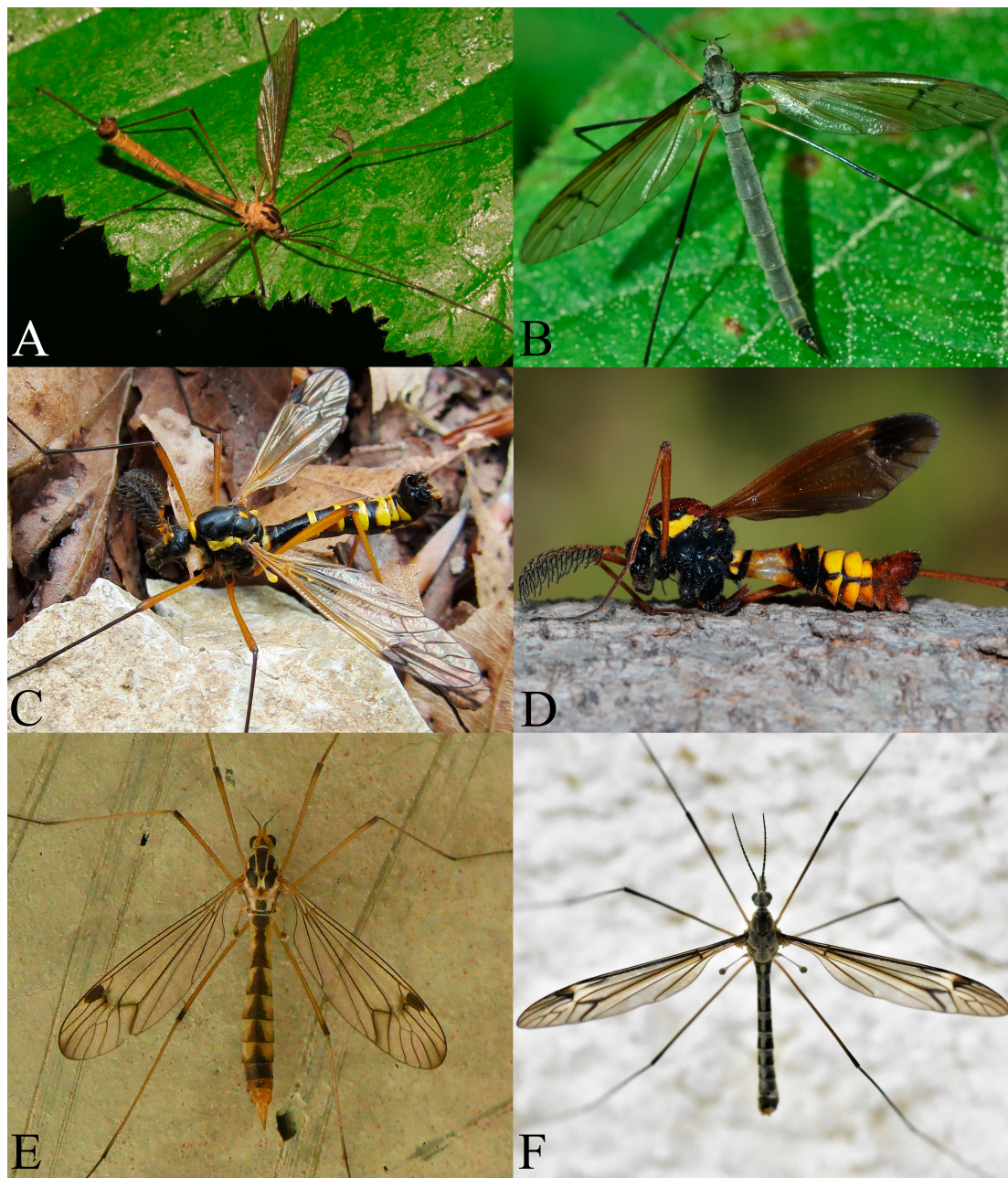


Figure 2. Various cranefly photos representing first country records. (A) *Cylindrotoma distinctissima* (Meigen, 1818), Slovenia; (B) *Pedicia (Crunobia) riedeli* (Lackschewitz, 1940), Slovenia; (C) *Ctenophora (Ctenophora) flaveolata* (Fabricius, 1794), Slovenia; (D) *Ctenophora (Cnemoncosis) ornata* Meigen & Wiedemann, 1818, Cyprus; (E) *Nephrotoma quadrifaria quadrifaria* (Meigen, 1804), Finland; (F) *Tipula (Yamatotipula) couckeii* Tonnoir, 1921, Slovenia. Photos: (A) Natalija Pišec, (B,C,F) Dejan Janević, (D) Marios Aristophanous and (E) Miikka Friman.

Family Pediciidae

2. *Dicranota (Dicranota) guerini* Zetterstedt, 1838

Material examined: Russia: RUC, Tver Province, Torzhok district, Panika village, 10 m; 57.001016°, 35.081337°; 12 September 2021; 2 males; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC. Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Zaymishche, Geomagnetic station, 87 m; 55.82684°, 48.84395°; 19 August–21 August 2011; 2 males; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Bavlinsk

district, Hansverkino village, Verhnii Kandiz River, 142 m; 54.02989°, 53.22563°; 09 May 2013; 3 males; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First records from RUC and RUE.

3. *Dicranota (Ludicia) lucidipennis* (Edwards, 1921)

Material examined: Spain: Galicia, Lugo, O Incio, A Ferrería, 730 m; 42.6343°, −7.30746°; 29 June 2008; 1 male; J.L. Camaño leg.; E. Eiroa det.; USC.

Comments: First record from Spain.

4. *Dicranota (Paradicranota) auripontium* Starý & Krzemiński, 1993

Material examined: Greece: Kerkini env., Kerkini Mts., 1500 m; 41.31°, 23.07°; 24 April 2008; 1 male; J. Máca leg.; J. Starý det.; PCJS.

Comments: First record from Greece.

5. *Dicranota (Paradicranota) brevitarsis* Bergroth, 1891

Material examined: Poland: Lesser Poland, Tatra Range, Regłowe Tatra Mts., Tatrzański National Park, Bystra Stream, 1120 m; 49.26°, 19.97°; 20 June 1984; 1 male; S. Niesiołowski leg.; J. Wiedeńska det.; DIZH UŁ. Poland: Lesser Poland, Tatra Range, High Tatra Mts., Tatrzański National Park, Roztoka Stream below the waterfall Wielka Siklawa, 1450 m; 49.21°, 20.04°; 21 June 1984; 1 male; S. Niesiołowski leg.; J. Wiedeńska det.; DIZH UŁ. Poland: Lesser Poland, Tatra Range, Tatrzański National Park, Regłowe Tatra Mts., Sucha Woda Gąsienicowa Stream, 1025 m; 49.28°, 20.03°; 22 June 1984; 1 male, 29 females; S. Niesiołowski leg.; J. Wiedeńska det.; DIZH UŁ. Poland: Lesser Poland, Tatra Range, Tatrzański National Park, Regłowe Tatra Mts., Olczyski Stream, 940 m; 49.28°, 19.99°; 18 June 1984; 1 male; S. Niesiołowski leg.; J. Wiedeńska det.; DIZH UŁ.

Comments: First records from Poland.

6. *Dicranota (Paradicranota) candelisequa* Starý, 1981

Material examined: Russia: NC, Karachay-Cherkess Republic, Zelenchuksky district, Arkhyz, 1480 m; 43.543597°, 41.284338°; 30 July 2018; 4 males; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC. Russia: NC, Krasnodar Territory, Nikitino village, Nikitinka river valley (Malaya Laba River basin), right bank, 805–842 m; 43.9645°, 40.72096°; 25 June 2013; 1 male; V. Lantsov leg.; V. Lantsov det.; ZIN.

Comments: First records for Russia from NC.

7. *Dicranota (Paradicranota) cinerascens* Lackschewitz, 1940

Material examined: Portugal: Castelo Branco, Covilha, Lago do Viriato, serra da Estrela, 1600 m; 40.31375°, −7.56494°; 30 May 1992; 2 males; E. Eiroa leg.; E. Eiroa det.; USC. Portugal: Castelo Branco, Covilha, Penhas da Saúde, serra da Estrela, 1500 m; 40.30775°, −7.5377°; 30 May 1992; 7 males; E. Eiroa leg.; E. Eiroa det.; USC.

Comments: First records from Portugal.

8. *Dicranota (Paradicranota) landrocki* Czižek, 1931

Material examined: Serbia: Knjaževac, Crni Vrh, 800 m; 43.407°, 22.587°; 1 May–8 May 2015; 1 male; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU. Serbia: Stara Planina Mts., 1030 m; 43.396°, 22.607°; 1 May–8 May 2015; 1 male; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU.

Comments: First records from Serbia.

9. *Dicranota (Paradicranota) mikiana* Lackschewitz, 1940

Material examined: Serbia: Stara Planina Mts., 1030 m; 43.396°, 22.607°; 1 May–8 May 2015; 1 male; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU.

Comments: First record from Serbia.

10. *Dicranota (Paradicranota) pallens* Lackschewitz, 1940

Material examined: Portugal: Castelo Branco, Covilha, Lago do Viriato, serra da Estrela, 1600 m; 40.31375°, −7.56494°; 30 May 1992; 1 male; E. Eiroa leg.; E. Eiroa det.; USC. Portugal: Guarda, Manteigas, Nave de Santo Antonio, serra da Estrela, 1540 m; 40.32036°, −7.58459°; 29 May 1992; 1 male; E. Eiroa det.; E. Eiroa leg.; USC. Portugal: Castelo Branco, Covilha, Penhas da Saúde, serra da Estrela, 1500 m; 40.30775°, −7.5377°; 30 May 1992; 1 male; E. Eiroa leg.; E. Eiroa det.; USC.

Comments: First records from Portugal.

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

Material examined: Russia: RUC, Moscow Province, Solnechnogorsk district, Chashnikovo, 220 m; 56.0375°, 37.1874°; 27 May 1995; 1 male; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC. Russia: RUE, Republic of Tatarstan, Verkhneuslonsk district, field base “Zoo-station”, 3.5 km NW of Pustye Morkvashi, 80 m; 55.47005°, 48.44092°; 22 August 2013; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First records for Russia, from RUC and RUE.

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

Material examined: Portugal: Guarda, Manteigas, Vale do Zézere, serra da Estrela, 1240 m; 40.32682°, −7.57641°; 30 May 1992; 3 males; E. Eiroa leg.; E. Eiroa det.; USC. Russia: RUN, Murmansk Province, Laplandskii Nature Reserve, Vtoroi ruchej [=second stream], middle part, 180 m; 67.6626°, 32.63355°; 31 July 2013; 1 male; A. Polevoi leg.; A. Polevoi det.; FRIP.

Comments: First records from Portugal and RUN. Male terminalia illustrated in Figure 3A.

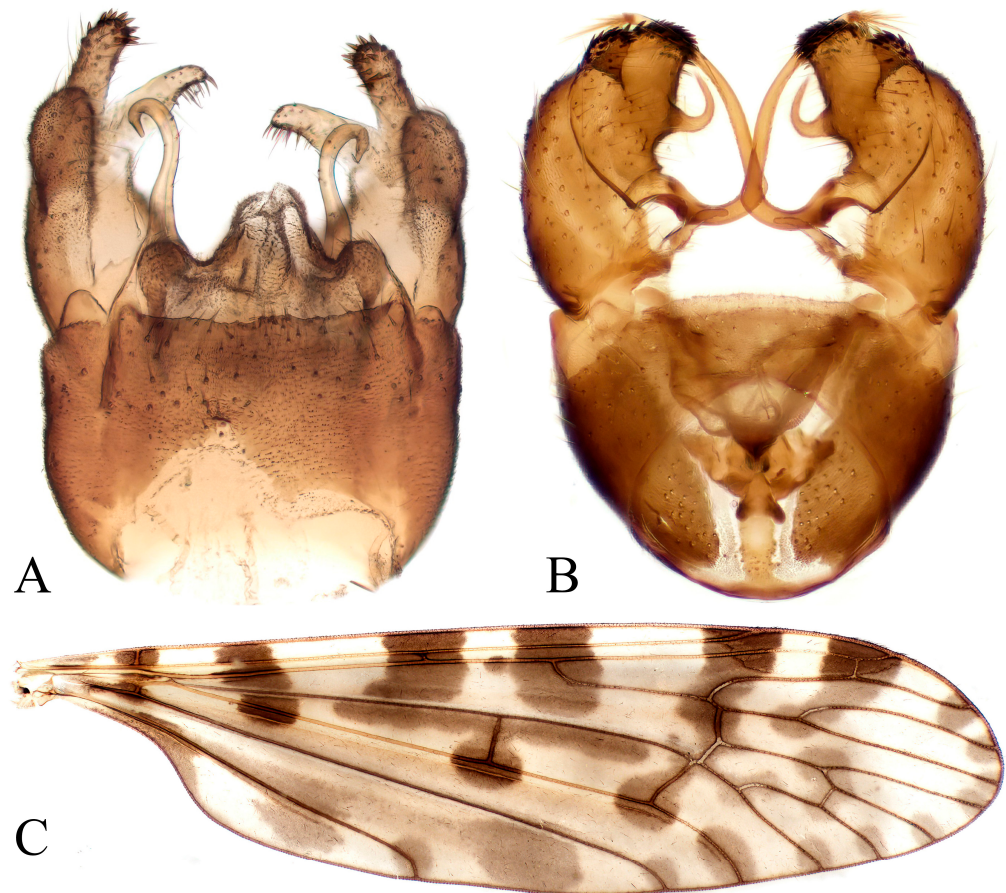


Figure 3. Male terminalia and wing. (A) *Dicranota (Paradicranota) subtilis* Loew, 1871, terminalia, dorsal view; (B,C) *Nasiternella varinervis* (Zetterstedt, 1851), wing and terminalia, dorsal view. Photos: A. Polevoi.

13. *Nasiternella varinervis* (Zetterstedt, 1851)

Material examined: Russia: RUN, Republic of Karelia, Kivach Nature Reserve, Kivach, 2 km NW of central settlement, 50 m; 62.28148°, 33.96745°; 15 June–17 July 2017; 1 male, 1 female; A. Polevoi leg.; A. Polevoi det.; FRIP. Russia: RUC, Moscow Province, Solnechnogorsk district, Chashnikovo, 220 m; 56.0375°, 37.1874°; 3 June 1992; 3 males; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC. Russia: RUC, Moscow Province, Solnechnogorsk district, Chashnikovo, 220 m; 56.0375°, 37.1874°; 15 June 1992; 1 female; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC. Russia: RUC, Moscow Province, Solnechnogorsk district, Chashnikovo, 220 m; 56.0375°, 37.1874°; 01 June 1996; 1 male; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC. Russia: RUC, Moscow Province, Solnechnogorsk district, Chashnikovo, 220 m; 56.0375°, 37.1874°; 11 June 1997; 1 male; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC.

Comments: First records for European part of Russia, from RUC and RUN. Male terminalia and wing illustrated in Figure 3B,C.

14. *Pedicia (Amalopsis) fusca* Ujvárosi & Bálint, 2012

Material examined: Poland: Lesser Poland, Zakopane; 49.28°, 19.95°; 20 May 1981; 2 males; W. Krzemiński leg.; M. Syratt det.; ISEA.

Comments: First records from Poland.

15. *Pedicia (Crunobia) riedeli* (Lackschewitz, 1940)

**Material:* Slovenia: Celje, in the forest near Celje; 46.22°, 15.26°; 27 April 2020; 1 female; D. Janevič photographed; J. Starý det.

Comments: First record from Slovenia, identified from photograph (Figure 2B).

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

Material examined: Russia: RUC, Moscow Province, Solnechnogorsk district, Chashnikovo, 220 m; 56.0375°, 37.1874°; 6 July 1995; 1 male; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC. Russia: RUC, Moscow Province, Solnechnogorsk district, Chashnikovo, 220 m; 56.0375°, 37.1874°; 25 September 1995; 3 males; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC. Russia: RUC, Moscow Province, Solnechnogorsk district, Chashnikovo, 220 m; 56.0375°, 37.1874°; 19 July 1997; 1 male; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC. Russia: RUC, Moscow Province, Solnechnogorsk district, Chashnikovo, 220 m; 56.0375°, 37.1874°; 21 August 1997; 2 males; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC. Russia: RUE, Republic of Tatarstan, Verkhneuslonsk district, field base “Zoostation”, 3.5 km NW of Pustye Morkvashi, 80 m; 55.47005°, 48.44092°; 22 August–25 August 2014; 15 males, 3 females; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First records from RUC and confirmation of the presence in RUE.

17. *Pedicia (Crunobia) tjederi* Mendl, 1974

Material examined: Portugal: Guarda, Manteigas, Poço do Inferno, serra da Estrela, 1066 m; 40.37304°, −7.51663°; 30 May 1992; 1 male; E. Eiroa leg.; E. Eiroa det.; USC. Portugal: Guarda, Manteigas, Vale do Zézere, serra da Estrela, 1240 m; 40.32682°, −7.57641°; 30 May 1992; 5 males, 2 females; E. Eiroa leg.; E. Eiroa det.; USC. Spain: Galicia, Lugo, Cervantes, Cabana, río Navia, sierra de Os Ancares, 344 m; 42.92336°, −7.06151°; 29 May 1985; 1 male; E. Eiroa leg.; E. Eiroa det.; USC. Spain: Galicia, Orense, Vilariño de Conso, Arroyo Pico Ortiga, Ribeira Grande valley, sierra de O Invernadeiro, 992 m; 42.12946°, −7.29153°; 25 September 1988; 3 males; E. Eiroa leg.; J. Starý and E. Eiroa det.; USC.

Comments: First records from Spain and Portugal.

18. *Tricyphona (Tricyphona) schummeli* Edwards, 1921

Material examined: Estonia: Viidu, Viidumäe Nature reserve, 40 m; 58.2966°, 22.0863°; 2002; 1 male; T. Talvi leg.; J. Salmela det.; LMM. Russia: RUC, Moscow Province, Solnechnogorsk district, Zelenograd, 200 m; 55.98722°, 37.20443°; 14 June 1992; 3 males; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC. Russia: RUC, Moscow Province, Solnechnogorsk district, Chashnikovo, 220 m; 56.0375°, 37.1874°; 11 June 1997; 1 male; V.E. Pilipenko leg.;

V.E. Pilipenko det.; VPMC. Serbia: Stara Planina Mts., Babin Zub Mt., 1550 m; 43.375°, 22.625°; 1 July–7 July 2015; 5 males, 3 females; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU. Serbia: Stara Planina Mts., 1500 m; 43.37°, 22.6°; 1 July–7 July 2015; 2 males; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU. Serbia: Knjaževac, Crni Vrh, 800 m; 43.407°, 22.587°; 1 July–7 July 2015; 1 male, 2 females; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU. Serbia: Stara Planina Mts., 1496 m; 43.368°, 22.5943°; 29 June 2015; 2 males; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU. Serbia: Knjaževac, Crni Vrh, 708 m; 43.408°, 22.5751°; 29 June 2015; 1 male; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU.

Comments: First records from Estonia, RUC and Serbia.

19. *Tricyphona (Tricyphona) unicolor* (Schummel, 1829)

Material examined: Bulgaria: Sofia, Beli Iskar, 2 km SE, 1250 m; 42.263°, 23.553°; 19 May 2022; 4 males, 1 female; O.J. Lønnve leg.; K.M. Olsen det.; NHMO. Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, "Raifa", 100 m; 55.88868°, 48.71434°; 16 May 2005; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: NC, Republic of Dagestan, Salda, right bank of Djoakhor River (left tributary of Dzhurmut River), 1740 m; 41.971074°, 46.508839°; 6 July 2016; 1 male; V.I. Lantsov leg.; V.I. Lantsov det.; ZIN.

Comments: First records from Bulgaria, RUE and NC.

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

Material examined: Belarus: Minsk Province, Barysaw, 155 m; 54.25542°, 28.48092°; 5 July 2013; 1 male; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU. Belarus: Minsk Province, Barysaw, Vialikaje Stachava, 156 m; 54.26555°, 28.38332°; 7 July 2013; 1 female; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU. Belarus: Gomel Province, Mazyr; 52.05°, 29.31°; 11 June–14 June 2019; 1 male; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU. Estonia: Kastre, Järvelja; 58.2673°, 27.318°; 30 August–27 September 1989; 5 males, 7 females; reared from *Pleurotus ostreatus*; O. Kurina leg.; O. Kurina det.; IZBE. Estonia: Lääneranna, 7 km NE of Virtsu; 58.6101°, 23.5576°; 31 August 1991–7 April 1992; 1 male; reared from *Lactarius torminosus*; O. Kurina leg.; O. Kurina det.; IZBE. Estonia: Lääne-Nigula, Oonga near Martna; 58.8303°, 23.7385°; 29 August 1991–5 April 1992; 1 male; reared from *Laetiporus sulphureus*; O. Kurina leg.; O. Kurina det.; IZBE.

Comments: First records from Belarus and Estonia.

21. *Ula (Ula) kiushiensis* Alexander, 1933

Material examined: Norway: Hedmark, Stor-Elvdal, Trya, 400 m; 61.55609388°, 10.975212°; 26 July 2017; 1 female; K.M. Olsen leg.; K.M. Olsen det.; PCKMO. Norway: Troms, Storfjord, Sandørneset, 15 m; 69.33520869°, 19.97806°; 11 July 2017; 1 female; K.M. Olsen leg.; K.M. Olsen det.; NHMO. Norway: Troms, Tromsø, Skredelva, 25 m; 69.53841154°, 19.180791°; 13 July 2017; 1 female; K.M. Olsen leg.; K.M. Olsen leg.; NHMO.

Comments: First records from Norway.

22. *Ula (Ula) mixta* Starý, 1983

Material examined: Serbia: Stara Planina Mts., 1500 m; 43.37°, 22.6°; 1 May–8 May 2015; 1 male; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU. Sweden: Södermanland, Stockholm, Södertälje, Tullgarns näs, Rävslaviken, 1 m; 58.955217°, 17.60755°; 3 July–19 August 2004; 1 male; The Swedish Malaise Trap Project leg.; M. Andersson det.; NHRS. Sweden: Småland, Jönköping, Gränna, Lönnemålen, 280 m; 58.048917°, 14.573033°; 31 May–15 June 2005; 2 males; The Swedish Malaise Trap Project leg.; M. Andersson det.; NHRS. Sweden: Östergötland, Ödeshög, Omberg, Stocklycke, 125 m; 58.306383°, 14.631833°; 23 August–16 September 2005; 1 male, 1 female; The Swedish Malaise Trap Project leg.; M. Andersson det.; NHRS. Sweden: Halland, Halmstad, Skällås, Breared, beech forest, 115–140 m; 56.704528°, 13.116203°; 11 May–15 July 2011; 3 females; M. Lindström leg.; M. Lindström det.; PCML. Sweden: Halland, Halmstad, Tavla, Enslöv, beech forest, 125–155 m; 56.766632°, 13.126506°; 11 May–19 July 2011; 1 male; M. Lindström leg.; M. Lindström det.; PCML.

Sweden: Halland, Halmstad, Biskopstorp, Slättåkra, beech forest, 160–170 m; 56.812321°, 12.897032°; 11 May–19 July 2011; 5 males, 1 female; M. Lindström leg.; M. Lindström det.; PCML. Sweden: Halland, Halmstad, Skavböke, Enslöv, beech forest, 170–180 m; 56.817965°, 13.096988°; 13 May–18 July 2011; 1 female; M. Lindström leg.; M. Lindström det.; PCML. Sweden: Västergötland, Jönköping, Habo, Aspåsen, Gustav Adolf, 210 m; 58.014014°, 14.132889°; 5 May–20 May 2017; 1 male; N. Johansson leg.; M. Andersson det.; NHRS. Sweden: Västergötland, Jönköping, Habo, Aspåsen, Gustav Adolf, 210 m; 58.01401°, 14.13289°; 26 May–15 June 2017; 1 male; N. Johansson leg.; M. Andersson det.; NHRS. Sweden: Småland, Jönköping, Huskvarna, Smedstorp, Hakarp, 240 m; 57.807397°, 14.28907°; 12 May 2018; 1 male, 1 female; M. Andersson leg.; M. Andersson det.; NHRS. *Sweden: Småland, Jönköping, Norra Unnaryd, Svanån, Norratorp, 180 m; 57.563899°, 13.719817°; 21 May 2020; 1 male; M. Andersson; M. Andersson det. *Sweden: Småland, Jönköping, Skillingaryd, Lagan, 180 m; 57.427797°, 14.10602°; 13 August 2020; 1 male; M. Andersson; M. Andersson det.; *Sweden: Småland, Jönköping, Huskvarna, Pettersberg, Hakarp, 205 m; 57.780749°, 14.306327°; 4 June 2021; 1 male; M. Andersson M. Andersson det.; *Sweden: Småland, Jönköping, Sävsjö, Sävsjön, Norragården, 240 m; 57.409763°, 14.637407°; 1 August 2021; 1 male, 1 female; R. Isaksson, M. Andersson det.

Comments: The species was first reported from Sweden in CCW, based on records uploaded to [103] here, herewe publish the collection data for those records and some additional records. First record from Serbia.

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

Material examined: Belarus: Gomel Province, Mazyr; 52.02°, 29.3°; 29 July–31 July 2019; 4 males, 2 females; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU. Estonia: Saaremaa, Viidumäe Nature Reserve; 58.2986°, 22.0922°; 11 August–20 September 1988; 1 male; reared from *Russula densifolia*; O. Kurina leg.; O. Kurina det.; IZBE. Estonia: Saaremaa, Viidumäe Nature Reserve; 58.2986°, 22.0922°; 11 August–12 September 1988; 4 males, 2 females; reared from *Lactarius scrobiculatus*; O. Kurina leg.; O. Kurina det.; IZBE. Serbia: Knjaževac, Crni Vrh, 800 m; 43.407°, 22.587°; 1 May–8 May 2015; 1 female; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU. Serbia: Stara Planina Mts., 1500 m; 43.37°, 22.6°; 1 May–8 May 2015; 1 female; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU. Serbia: Stara Planina Mts., 1030 m; 43.396°, 22.607°; 1 May–8 May 2015; 6 females; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU. Serbia: Knjaževac, Knjaževac; 43.55°, 22.24°; 27 April–30 April 2015; 1 male; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU. Serbia: Knjaževac, Knjaževac; 43.55°, 22.24°; 27 April–30 April 2015; 1 female; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU.

Comments: First records from Belarus, Estonia and Serbia.

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

Material examined: Belarus: Minsk Province, Barysaw, Vialikaje Stachava, 156 m; 54.26555°, 28.38332°; 7 July 2013; 1 female; D.I. Gavryushin leg.; D.I. Gavryushin det.; ZMMU.

Comments: First record from Belarus.

Family Tipulidae

25. *Ctenophora (Cnemoncosis) festiva* Meigen, 1804

Material examined: Denmark: Falster, Borremosen, Præstemosen; 54.835°, 11.935°; 15 June 1998; 1 female; A.I. Madsen leg.; T. Pape det.; NHMD. Denmark: Lolland, Errindlev, Keldskov; 54.668°, 11.554°; 20 May 2011; 1 male; J. Pedersen leg.; T. Pape det.; NHMD. Russia: NC, Krasnodar Territory, Sochi district, Monastery village, 300 m; 43.5935°, 40.0109°; 23 June–26 June 2008; 1 female; K.P. Tomkovich leg.; V.E. Pilipenko det.; VPMC. Norway: Aust-Agder, Risør, Søndeled, Trollåsen, 82 m; 58.7509°, 9.13546°; 10 May–13 June 2022; 1 female; F. Ødegaard leg.; K.M. Olsen det.; NTNU-VM.

Comments: First records from Denmark, Norway and NC.

26. *Ctenophora (Cnemoncosis) ornata* Meigen & Wiedemann, 1818

Material examined: Cyprus: Tsakistra, Paphos Forest, Tsakistra Dam, 530 m; 35.02411°, 32.70241°; 15 June 2021; 1 male; M. Aristophanous leg.; M. Aristophanous and P. Oosterbroek det.; ACCY.

Comments: First record from Cyprus. The habitus of male illustrated in Figure 2D.

27. *Ctenophora (Ctenophora) flaveolata (Fabricius, 1794)*

**Material:* Slovenia: Podgorica, Lisca Hill, 940 m; 46.068°, 15.284°; 30 April 2017; 1 male; D. Janević photographed; D. Janević and P. Oosterbroek det.

Comments: First record from Slovenia based on photograph (Figure 2C).

28. *Ctenophora (Ctenophora) guttata Meigen & Wiedemann, 1818*

Material examined: Italy: Sicily, Palermo, Bosco della Ficuzza, Pulpito del Re; 37.53174°, 13.23768°; 15 May 2004; 1 male; D. Bitele leg.; P. Oosterbroek det.; NBCN. Russia: RUE, Republic of Tatarstan, Verhneuslonsk district, Kyzyl-Bayrak village, 85 m; 55.510971°, 49.027606°; 05 July 2007; 1 female; I.O. Karmazina leg.; N.M. Paramonov det.; ZIN.

Comments: First records from Sicily (Italy) and RUE.

29. *Dolichopeza (Dolichopeza) bifida Oosterbroek & Lantsov, 2011*

Material examined: Poland: Subcarpathia Province, Przemyśl County, gmina Fredropol, Pogórze Przemyskie Landscape Park, Makowa; 49.62°, 22.65°; 03 July 1992; 2 males; W. Krzemiński leg.; M. Syratt det.; ISEA. Poland: Lesser Poland, Myślenice County, gmina Lubień, Lubień, massif of Szczebel mountain, 430 m; 49.70674°, 19.99864°; 14 July 2022; 1 male; M. Syratt leg.; M. Syratt det.; PCMS.

Comments: First records from Poland.

30. *Dolichopeza (Dolichopeza) fuscipes Bergroth, 1889*

Material examined: Bulgaria: Sandanski municipality, Sandanski; 41.55°, 23.27°; 14 June 1984; 1 male, 2 females; W. Krzemiński leg.; M. Syratt and C. Dufour det.; ISEA.

Comments: First record from Bulgaria.

31. *Nephrotoma analis (Schummel, 1833)*

Material examined: Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, "Raifa", 100 m; 55.88868°, 48.71434°; 14 June 2009; 2 males; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First record from RUE.

32. *Nephrotoma appendiculata appendiculata (Pierre, 1919)*

Material examined: Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, "Raifa", 100 m; 55.88868°, 48.71434°; 11 June 2009; 7 males; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First record from RUE.

33. *Nephrotoma cornicina cornicina (Linnaeus, 1758)*

Material examined: Russia: RUE, Perm Territory, Alexandrovsk municipal district, Kamen', 143 m; 59.469588°, 57.429078°; 25 July 1997; 2 males; K.B. Gorodkov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Perm Territory, Kishert' district, Kishert', 20 km SE Kungur, 123 m; 57.365089°, 57.236024°; 27 July 1997; 3 males; K.B. Gorodkov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Perm Territory, Kungur municipal district, Kungur, garden near Kungur Ice Cave, 125 m; 57.440553°, 57.005417°; 29 July 1997; 1 male; K.B. Gorodkov leg.; N.M. Paramonov det.; ZIN.

Comments: First records from RUE.

34. *Nephrotoma lamellata lamellata (Riedel, 1910)*

Material examined: Russia: RUN, Republic of Karelia, Kondopoga district, Zapadnoe Konchezero, 50 m; 62.10696°, 33.99288°; 4 June 2013; 1 male; A. Polevoi leg.; A. Polevoi det.; FRIP. Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State

Nature Biosphere Reserve, “Raifa”, 100 m; 55.88868°, 48.71434°; 13 June 2009; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Laishevo district, Volga-Kama State Nature Biosphere Reserve, “Saraly”, island Ornitologicheskiiy, 50 m; 55.283916°, 49.260808°; 19 June–24 June 2009; 3 males; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First records from RUE and RUN.

35. *Nephrotoma lunulicornis* (Schummel, 1833)

Material examined: Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, “Raifa”, Serbulak River, 100 m; 55.88868°, 48.71434°; 13 June 2009; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, “Raifa”, 100 m; 55.88868°, 48.71434°; 11 June–16 June 2009; 2 males; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Il'inskoe village, 90 m; 55.874548°, 48.685785°; 12 June 2009; 2 males; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Kazan, Derbyshki district, Noksa River, 60 m; 55.8655°, 49.22461°; 25 June 2009; 2 males; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, Lake Raifskoe, 75 m; 55.912374°, 48.731594°; 11 June 2009; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First records from RUE.

36. *Nephrotoma quadrifaria quadrifaria* (Meigen, 1804)

Material examined: *Finland: Uusimaa, Vantaa, Vestra; 60.33294°, 24.76979°; 13 July 2019; 1 female; M. Friman photographed; M. Friman and P. Oosterbroek det. *Finland: Uusimaa, Vantaa, Vestra; 60.33294°, 24.76979°; 19 June 2019; 1 male; M. Friman photographed; M. Friman and E. Viitanen det. Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, Sumka River, Lake Raifskoe, 75 m; 55.912374°, 48.731594°; 27 June 2012; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First records from Finland and RUE. Habitus of female from Finland is illustrated in Figure 2E.

37. *Nephrotoma tenuipes* (Riedel, 1910)

Material examined: Russia: RUE, Republic of Bashkortostan, Beloretsk district, Nura River, 590 m; 54.049973°, 58.277496°; 9 August 2009; 1 male, 1 female; D.I. Gavryushin leg.; N.M. Paramonov det.; ZIN.

Comments: First record from RUE.

38. *Nigrotipula nigra nigra* (Linnaeus, 1758)

Material examined: Albania: Djileke, 50 m; 40.160774°, 19.603465°; 4 May 2016; 1 male; L.-P. Kolcsár leg.; L.-P. Kolcsár det.; CKLP.

Comments: First record from Albania.

39. *Prionocera abscondita* Lackschewitz, 1933

Material examined: Norway: Troms, Kåfjord, N Nuorttit Gussacohkka, 850 m; 69.3847°, 21.0882°; 1 July–12 July 2022; 3 males; K.M. Olsen leg.; K.M. Olsen det.; PCKMO. Norway: Troms, Kåfjord, N Nuorttit Gussacohkka, 850 m; 69.3847°, 21.0882°; 1 July 2022; 1 male; K.M. Olsen leg.; K.M. Olsen det.; PCKMO.

Comments: First records from Norway.

40. *Prionocera subserricornis* (Zetterstedt, 1851)

Material examined: Belgium: Koersel, Zwarte Beek; 51.0829°, 5.3047°; 22 September 2013; 1 male; F. Vandemeutter leg.; K. Peeters det.; NBCN. Belgium: Auderghem, Jardin Massart; 50.8135°, 4.4367°; 12 July 2015; 1 male; P. Grootaert leg.; K. Peeters det.; NBCN. Belgium: Auderghem, Jardin Massart; 50.8135°, 4.4367°; 16 August 2015; 1 female; P. Grootaert leg.; K. Peeters det.; NBCN.

Comments: First records from Belgium.

41. *Tipula (Acutipula) schmidtii* Mannheims, 1952

Material examined: Bulgaria: Sandanski municipality, Sandanski; 41.55°, 23.27°; 13 June–14 June 1984; 4 males, 2 females; W. Krzemiński leg.; C. Dufour det.; ISEA.

Comments: First record from Bulgaria.

42. *Tipula (Acutipula) tenuicornis* Schummel, 1833

Material examined: Bosnia and Herzegovina: Popov Most, Sutjeska Mts., Sutjeska National Park, 900 m; 43.348524°, 18.705139°; 30 April 2017; 1 male; L.-P. Kolcsár and E. Török leg.; L.-P. Kolcsár det.; CKLP.

Comments: First record from Bosnia and Herzegovina.

43. *Tipula (Lunatipula) adusta* Savchenko, 1954

Material examined: Russia: RUE, Republic of Bashkortostan, Abzakovo-Murakaevo, Southern Ural, Kryktytau Mts., 846 m; 53.525567°, 58.498908°; 2 August–8 August 2008; 2 males; K.P. Tomkovitch leg.; N.M. Paramonov det.; ZIN.

Comments: First record European part of Russia from RUE.

44. *Tipula (Lunatipula) affinis* Schummel, 1833

Material examined: Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, "Raifa", 100 m; 55.88868°, 48.71434°; 20 June–22 June 2009; 1 male; N.G. Petrov leg.; N.M. Paramonov det.; ZIN.

Comments: First record from RUE.

45. *Tipula (Lunatipula) animula* Mannheims, 1967

Material examined: Bulgaria: Kresna, Javorov, Struma shores; 41.72°, 23.16°; 17 June 1990; 1 male, 1 female; J. Martinovsky leg.; J. Martinovsky and C. Dufour det.; MHNN.

Comments: First record from Bulgaria.

46. *Tipula (Lunatipula) bifasciculata* Loew, 1873

Material examined: Albania: Boge, Prokletje Mts., 1020 m; 42.401469°, 19.661654°; 2 May 2016; 2 males; L.-P. Kolcsár leg.; L.-P. Kolcsár det.; CKLP. Albania: Butrint, Butrint lake shore, 12 m; 39.745429°, 20.020297°; 3 May 2016; 1 male; L.-P. Kolcsár leg.; L.-P. Kolcsár det.; CKLP.

Comments: First records from Albania.

47. *Tipula (Lunatipula) borysthenica* Savchenko, 1954

Material examined: Serbia: Deliblato, Deliblato Sands, 137 m; 44.864994°, 21.057709°; 28 April 2017; 1 male; L.-P. Kolcsár and E. Török leg.; L.-P. Kolcsár det.; CKLP.

Comments: First record from Serbia.

48. *Tipula (Lunatipula) caudatula* Loew, 1862

Material examined: Bulgaria: Kulata, Struma River, 84 m; 41.380772°, 23.36477°; 4 May 2011; 11 males; L.-P. Kolcsár leg.; L.-P. Kolcsár det.; CKLP. Bulgaria: Sandanski municipality, Sandanski; 41.55°, 23.27°; 14 June 1984; 3 females; W. Krzemiński leg.; C. Dufour det.; ISEA. Bulgaria: Sandanski, Lebnica Valley; 41.55°, 23.27°; 2 May 1988; 1 male; L. Vojkuvka leg.; J. Martinovsky and C. Dufour det.; MHNN. Bulgaria: Sandanski, Lebnica Valley; 41.55°, 23.27°; 4 May 1988; 1 male, 1 female; L. Vojkuvka leg.; J. Martinovsky and C. Dufour det.; MHNN.

Comments: First records from Bulgaria.

49. *Tipula (Lunatipula) cava* Riedel, 1913

Material examined: Norway: Vest-Agder, Farsund, Lomsesand; 58.0654°, 6.79282°; 11 June 2022; 1 male; J. Austevik et al. leg.; K.M. Olsen and M. Lindström det.; PCKMO.

Comments: First record from Norway.

50. *Tipula (Lunatipula) deserticola* Savchenko, 1968

Material examined: Russia: NC, Republic of Dagestan, Kumtorkalinsky district, near Sarykum Sand Dune, 90 m; 43.01°, 47.233°; 5 May 2019; 18 males, 10 females; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC. Russia: NC, Republic of Dagestan, Kumtorkalinsky district, near Sarykum Sand Dune, 90 m; 43.01°, 47.233°; 12 May–13 May 2019; 5 males, 4 females; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC.

Comments: First records for Russia from NC. Male terminalia illustrated in Figures 4 and 5.

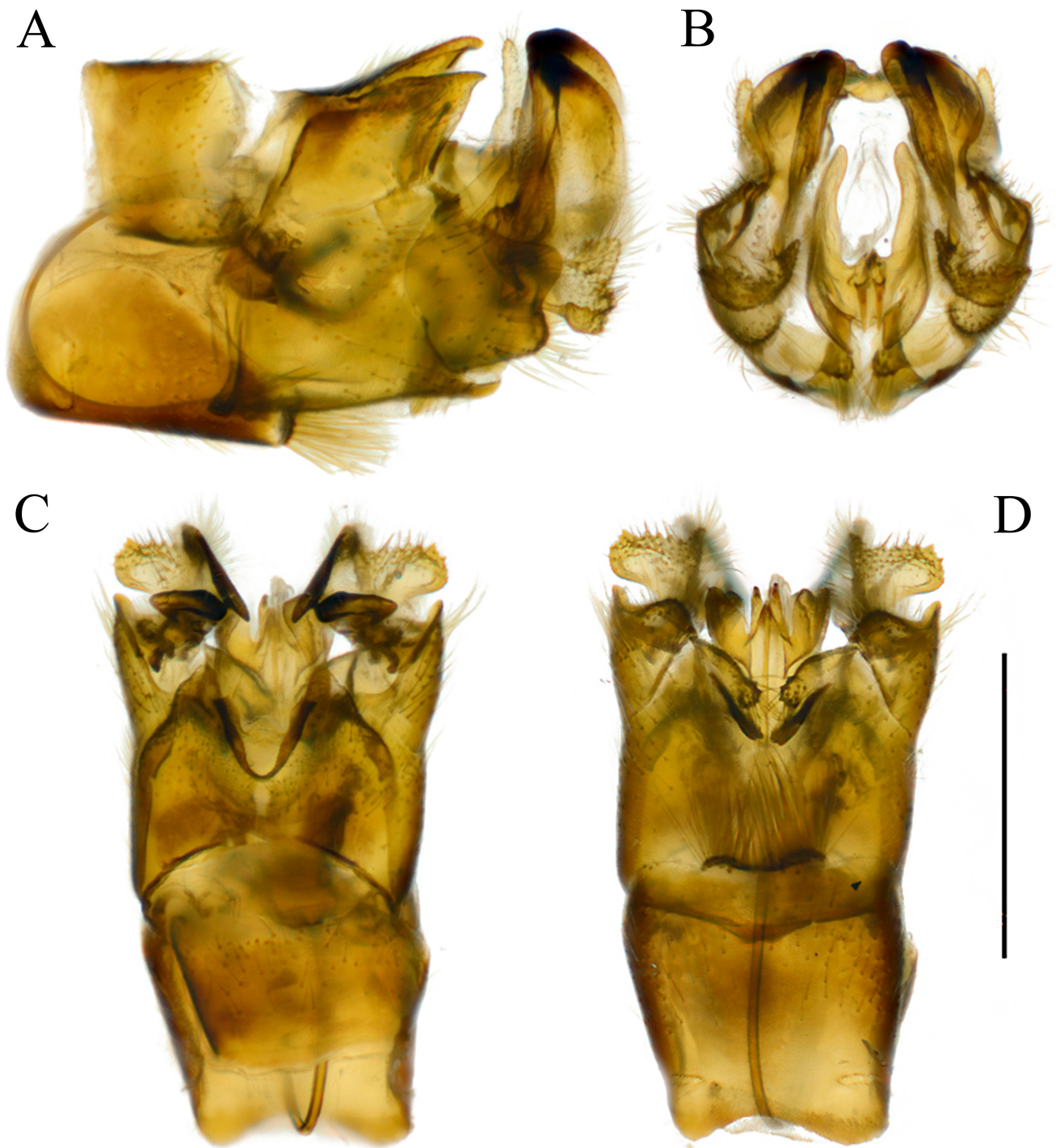


Figure 4. Male terminalia of *Tipula (Lunatipula) deserticola* Savchenko, 1968. (A) lateral view; (B) caudal view; (C) dorsal view; (D) ventral view. Scale bar 1 mm. Russia: NC. Photos: V. Pilipenko.

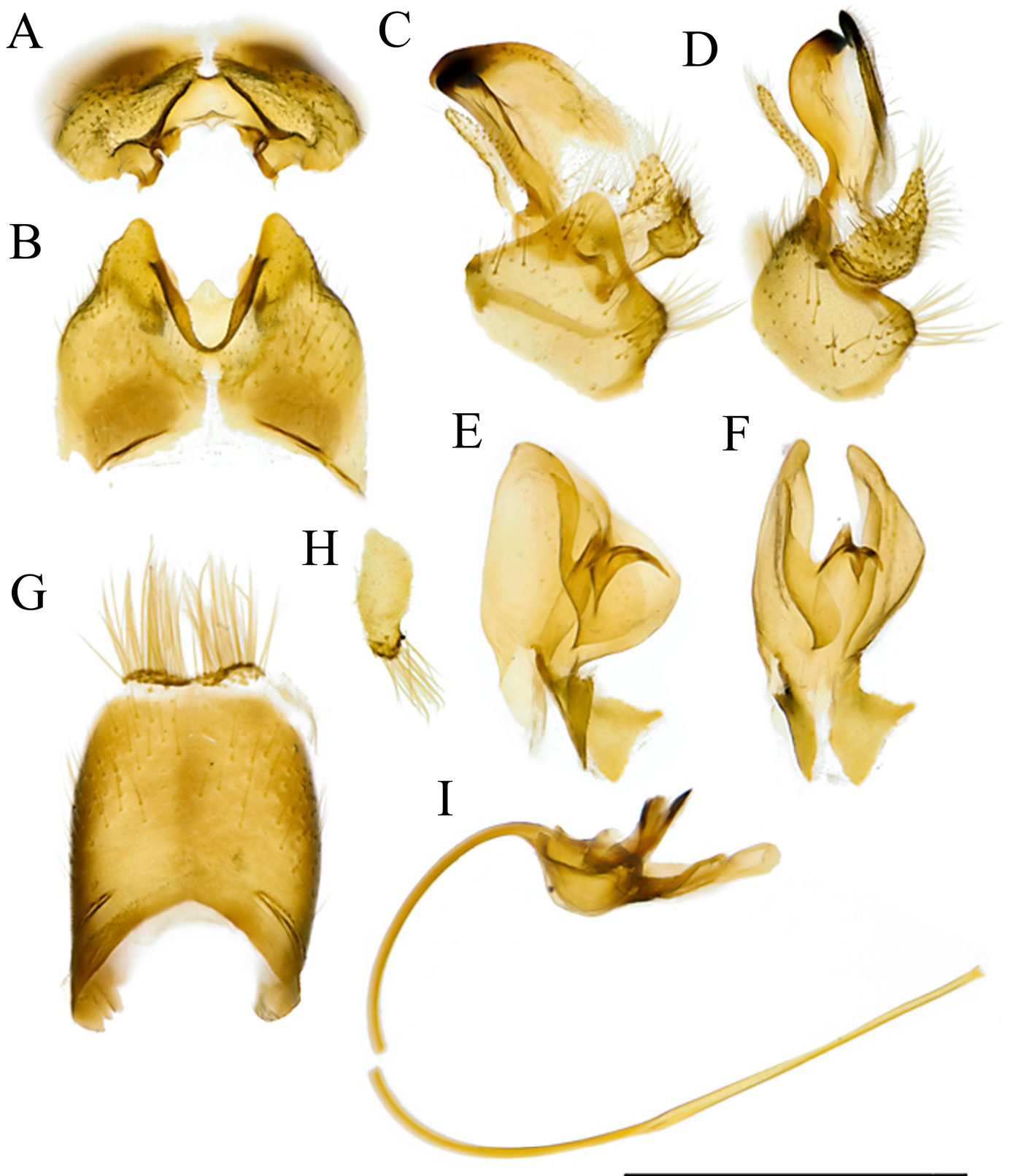


Figure 5. Parts of male terminalia of *Tipula (Lunatipula) deserticola* Savchenko, 1968. Tergite 9: (A) caudal view; (B) dorsal view; Gonocoxite and gonostylus; (C) inner lateral view; (D) caudal view; Adminiculum and gonapophysis; (E) lateral view; (F) caudal view; Sternite 9; (G) ventral view; Right apical appendage of sternite 9; (H) caudal view; Sperm pump and aedeagus; (I) lateral view. Scale bar 1 mm. Russia: NC. Photos: V. Pilipenko.

51. *Tipula (Lunatipula) eugeniana* Simova-Tošić, 1972

Material examined: Albania: Jabllanice Mts., Yngjerit Mt., 1200–1300 m; 41.3°, 20.44°; 30 June–2 July 2017; 2 males, 1 female; P. Vonička and L. Blažej leg.; P. Oosterbroek det.; NBCN. Bulgaria: Dospat, 9 km NEE of Dospat, 1170 m; 41.67134°, 24.26034°; 23 June 2016; 1 male; Bartak and Kubik leg.; J. Starý det.; PCJS.

Comments: First records from Albania and Bulgaria.

52. *Tipula (Lunatipula) humilis* Staeger, 1840

Material examined: Russia: NC, Karachay-Cherkess Republic, Uchkulan, 3 km upstream of Mahar-Su River, left bank, ~17 km S of villages, upper Uchkulan, 1800 m; 43.30599°, 41.97547°; 3 August 1995; 1 male; V. Lantsov leg.; V. Lantsov det.; ZIN. Russia: NC, Republic of Dagestan, Tsumadinsky district, near Upper Gakvari village, 2432 m; 42.55885°, 45.99681°; 18 July 2019; 4 males; V. Lantsov leg.; V. Lantsov det.; ZIN.

Comments: First records from NC.

53. *Tipula (Lunatipula) livida livida* van der Wulp, 1859

Material examined: Bosnia and Herzegovina: Gnjilista, Hutovo Blato National Park, 5 m; 43.065492°, 17.754623°; 4 May 2017; 1 male; L.-P. Kolcsár and E. Török leg.; L.-P. Kolcsár det.; CKLP. Bosnia and Herzegovina: Ulog, Ulog on Neretva River, 640 m; 43.42414°, 18.30837°; 29 June 2022; 1 male; W. Graf leg.; L.-P. Kolcsár det.; CKLP. Bulgaria: Sinemorets, Veleka river, delta, 4 m; 42.061177°, 27.967126°; 1 May 2011; 2 males; L.-P. Kolcsár leg.; L.-P. Kolcsár det.; CKLP. Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Zaymishche, Geomagnetic station, 87 m; 55.82684°, 48.84395°; 30 June 2012; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First records from Bosnia and Herzegovina, Bulgaria and RUE.

54. *Tipula (Lunatipula) mellea* Schummel, 1833

Material examined: Russia: RUE, Republic of Tatarstan, Laishevo district, Volga-Kama State Nature Biosphere Reserve, “Saraly”, island Ornitologicheskiiy, 50 m; 55.283916°, 49.260808°; 22 June 2009; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Kazan, Derbyshki district, Noksa River, 60 m; 55.8655°, 49.22461°; 26 June 2009; 2 males; N.G. Petrov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Samara Province, Stavropol' district, Zhiguli Nature Reserve, Samara bend, Seredysk Island, Kol'chuzhnoe Lake, 30 m; 53.45182°, 49.712396°; 28 June 2006; 1 male; A.N. Ovtschinnikov leg.; N.M. Paramonov det.; ZIN.

Comments: First records from RUE.

55. *Tipula (Lunatipula) pokornyi* Mannheims, 1968

Material examined: Italy: Campania, Salerno, 5 km S of Monte Cervati, 1200 m; 40.283°, 15.483°; 3 August–5 August 2002; 1 female; P. Oosterbroek and F.M. Hartveld leg.; P. Oosterbroek det.; NBCN.

Comments: First record from mainland Italy.

56. *Tipula (Lunatipula) pseudopeliostigma* Mannheims, 1965

Material examined: Cyprus: Alethriko, 125 m; 34.86527°, 33.49383°; 18 April–22 April 2022; 1 male, 1 female; M. Aristophanous leg.; P. Oosterbroek det.; NBCN.

Comments: First record from Cyprus.

57. *Tipula (Lunatipula) simova* Theischinger, 1982

Material examined: Bulgaria: Sandanski, Javorov, Struma shores; 41.55°, 23.27°; 14 June 1990; 2 males, 1 female; L. Vojkuvka leg.; J. Martinovsky and C. Dufour det.; MHNN.

Comments: First record from Bulgaria.

58. *Tipula (Lunatipula) subfalcata* Mannheims, 1967

Material examined: Andorra: Andorra-la-Vella, 1000–1200 m; 42.49°, 1.51°; 24 July 1955; 1 male; V.S. van der Goot & B. Theowald leg.; P. Oosterbroek det.; NBCN.

Comments: The species added to Andorra fauna based on [114], but without collection data. Here, we publish the collection data of that record.

59. *Tipula (Lunatipula) thais* Mannheims, 1963

Material examined: Bulgaria: Kulata, Struma river, 84 m; 41.380772°, 23.36477°; 4 May 2011; 1 male; L.-P. Kolcsár leg.; L.-P. Kolcsár det.; CKLP.

Comments: First record from Bulgaria.

60. *Tipula (Lunatipula) truncata* Loew, 1873

Material examined: Sweden: Gotland, File hajdar, Othem, 56 m; 57.7248°, 18.70453°; 8 June–27 June 2022; 1 male; K. Svahn and M. Tholin leg.; M. Andersson and R. Isaksson det.; NHRS.

Comments: First record from Sweden.

61. *Tipula (Odonatisca) nodicornis* Meigen, 1818

Material examined: Italy: Verbano-Cusio-Ossola (Piedmonte), 15 km N of Domodossola, Crodo, Verampio, 520 m; 46.247°, 8.331°; 13 July 1978; 2 males, 1 female; C. Dufour leg.; C. Dufour det.; MZL. Russia: RUE, Republic of Tatarstan, Laishevo district, Volga-Kama State Nature Biosphere Reserve, “Saraly”, 50 m; 55.283916°, 49.260808°; 19 June–21 June 2009; 1 male, 1 female; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Laishevo district, Volga-Kama State Nature Biosphere Reserve, “Saraly”, 50 m; 55.283916°, 49.260808°; 3 June–8 June 2010; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First records from Italy and RUE.

62. *Tipula (Pterelachisus) cinereocincta cinereocincta* Lundström, 1907

Material examined: Russia: RUC, Moscow Province, Solnechnogorsk district, Zelenograd, 200 m; 55.98722°, 37.20443°; 26 May 2016; 1 male; V.E. Pilipenko leg.; V.E. Pilipenko det.; VPMC.

Comments: First record for Russia from RUC.

63. *Tipula (Pterelachisus) irrorata* Macquart, 1826

Material examined: Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Il'inskoe village, 90 m; 55.874548°, 48.685785°; 11 June 2009; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, Lake Raifskoe, 75 m; 55.912374°, 48.731594°; 12 June 2009; 2 males, 2 females; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, “Raifa”, 100 m; 55.88868°, 48.71434°; 10 June 2010; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Laishevo district, Volga-Kama State Nature Biosphere Reserve, “Saraly”, 50 m; 55.283916°, 49.260808°; 3 June–8 June 2010; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First records from RUE.

64. *Tipula (Pterelachisus) mutila* Wahlgren, 1905

Material examined: Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, “Raifa”, Serbulak River, 100 m; 55.88868°, 48.71434°; 13 June 2009; 1 female; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, “Raifa”, 100 m; 55.88868°, 48.71434°; 13 June 2009; 1 female; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First record from RUE.

65. *Tipula (Pterelachisus) pabulina* Meigen, 1818

Material examined: Bosnia and Herzegovina: Popov Most, Sutjeska Mts., Sutjeska National Park., 900 m; 43.348524°, 18.705139°; 30 April 2017; 1 male; L.-P. Kolcsár and E.

Török leg.; L.-P. Kolcsár det.; CKLP. Bosnia and Herzegovina: Jezero, Boracko Lake, 400 m; 43.555431°, 18.02814°; 5 May 2017; 1 male; L.-P. Kolcsár and E. Török leg.; L.-P. Kolcsár det.; CKLP.

Comments: First records from Bosnia and Herzegovina.

66. *Tipula (Pterelachisus) pseudocrassiventris* Theowald, 1980

Material examined: Greece: Gonnos, Olimpos Mt.; 39.97°, 22.47°; 22 April 1980; 1 male; H. Teunissen leg.; P. Oosterbroek det.; NBCN. Poland: Lesser Poland, Nowy Sącz County, gmina Piwniczna-Zdrój, Poprad Landscape Park, Wierchomla Mała; 49.43°, 20.82°; 2 May 2022; 2 males; A. Tofilski leg.; M. Syratt det.; PCMS.

Comments: First records from Greece and Poland.

67. *Tipula (Pterelachisus) pseudoirrorata* Goetghebuer, 1921

Material examined: Russia: RUN, Republic of Karelia, Suojarvi district, Tolvojarvi, 5 km N, 200 m; 62.3174°, 31.43498°; 11 June–22 June 1999; 1 male; M. Tietäväinen et al. leg.; A. Polevoi det.; FRIP. Russia: RUN, Republic of Karelia, Suojarvi district, Tolvojarvi, 5 km N, 200 m; 62.3174°, 31.43498°; 22 June–30 June 1999; 2 males; M. Tietäväinen et al. leg.; A. Polevoi det.; FRIP.

Comments: First records from RUN.

68. *Tipula (Pterelachisus) submarmorata* Schummel, 1833

Material examined: Bulgaria: Vitosha Mts; 42.54°, 23.26°; 5 June 1982; 1 male; W. Krzemiński leg.; M. Syratt det.; ISEA.

Comments: First record from Bulgaria.

69. *Tipula (Pterelachisus) varipennis* Meigen, 1818

Material examined: Bulgaria: Sofia, Gorni Okol, 3 km SE, 810 m; 42.443°, 23.544°; 17 May 2022; 3 males, 1 female; O.J. Lønnve leg.; K.M. Olsen det.; NHMO. Bulgaria: Sofia, Beli Iskar, 2 km SE, 1250 m; 42.263°, 23.553°; 19 May 2022; 1 female; O.J. Lønnve leg.; K.M. Olsen det.; NHMO. Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Il'inskoe village, 90 m; 55.874548°, 48.685785°; 11 June 2009; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, Lake Raifskoe, 75 m; 55.912374°, 48.731594°; 15 June 2009; 3 males; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First records from Bulgaria and RUE.

70. *Tipula (Pterelachisus) wahlgreni* Lackschewitz, 1925

Material examined: Russia: RUN, Republic of Karelia, Suojarvi district, Tolvojarvi, 5 km N, 200 m; 62.3174°, 31.43498°; 2 July–10 July 1998; 2 males; M. Tietäväinen et al. leg.; A. Polevoi det.; FRIP. Russia: RUN, Republic of Karelia, Suojarvi district, Tolvojarvi, 5 km N, 200 m; 62.3174°, 31.43498°; 29 June–2 July 1998; 1 male; M. Tietäväinen et al. leg.; A. Polevoi det.; FRIP. *Russia: RUN, Republic of Karelia, Suojarvi district, Tolvojarvi, 5 km N, 200 m; 62.3174°, 31.43498°; 11 June–22 June 1999; 1 male; M. Tietäväinen et al.; A. Polevoi det.

Comments: First records from RUN.

71. *Tipula (Savtshenkia) benesignata* Mannheims, 1954

Material examined: Bulgaria: Balkanets, Central Stara Planina, Beli Osam tributary, 723 m; 42.807596°, 24.663691°; 30 October 2014; 2 males, 5 females; L.-P. Kolcsár and E. Török leg.; L.-P. Kolcsár det.; CKLP. Bulgaria: Vitosha Mts; 42.54°, 23.26°; 20 September 1985; 2 males; W. Krzemiński leg.; C. Dufour det.; ISEA. Russia: RUE, Republic of Tatarstan, Verkhneuslonsk district, field base "Zoostation", 3.5 km NW of Pustye Morkvashi, 80 m; 55.47005°, 48.44092°; 22 August–26 August 2013; 2 males; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First records from Bulgaria and RUE.

72. *Tipula (Savtshenkia) gimmerthali gimmerthali* Lackschewitz, 1925

Material examined: Bulgaria: Vitosha Mts; 42.54°, 23.26°; 20 September 1985; 7 males; W. Krzemiński leg.; C. Dufour and M. Syratt det.; ISEA.

Comments: First record from Bulgaria.

73. *Tipula (Savtshenkia) grisescens Zetterstedt, 1851*

Material examined: Montenegro: Zabljak, Crna Gora Mts., Crno Jezero, around lakes, 1442 m; 43.147527°, 19.09876°; 11 April 2010; 1 male; L.-P. Kolcsár leg.; L.-P. Kolcsár det.; CKLP. Russia: RUE, Republic of Tatarstan, Verkhneuslonsk district, field base “Zoostation”, 3.5 km NW of Pustye Morkvashi, 80 m; 55.47005°, 48.44092°; 08 May–09 May 2013; 2 males; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: First record from Montenegro and RUE.

74. *Tipula (Savtshenkia) subnodicornis Zetterstedt, 1838*

Material examined: Poland: Lesser Poland, Tatra County, Zakopane, Tatra National Park, Długi Staw Gąsienicowy, 1780 m; 49.22685°, 20.0089°; 15 June 1966; 2 males; A. Kownacki leg.; M. Syratt det.; ISEA.

Comments: First record from Poland.

75. *Tipula (Savtshenkia) subvafra Lackschewitz, 1936*

Material examined: Denmark: Jutland, Silkeborg, Buskhede, 5 km W of Silkeborg; 56.18035°, 9.42925°; 7 November 2009; 1 male; E. Nielsen leg.; W. Gritsch det.; PCWG. Denmark: Jutland, Silkeborg, Buskhede, 5 km W of Silkeborg; 56.18035°, 9.42925°; 13 November 2009; 2 females; E. Nielsen leg.; W. Gritsch det.; PCWG.

Comments: First records from Denmark.

76. *Tipula (Schummelia) zernyi Mannheims, 1952*

Material examined: Poland: Lesser Poland, Limanowa County, gmina Kamienica, Gorce National Park, Kamienica River Valley, near former PAS research station, 800 m; 49.5620°, 20.2105°; 20 July 1987; 2 males; J. Wiedeńska leg.; M. Syratt det.; ISEA.

Comments: First record from Poland.

77. *Tipula (Vestiplex) balioptera Loew, 1863*

Material examined: Norway: Troms, Kåfjord, N Nuorttit Gussacohkka, 850 m; 69.3847°, 21.0882°; 1 July–12 July 2022; 3 males, 2 females; K.M. Olsen leg.; K.M. Olsen and P. Starkevic det.; PCKMO. Norway: Troms, Kåfjord, N Nuorttit Gussacohkka, 850 m; 69.3847°, 21.0882°; 12 July 2022; 1 male; K.M. Olsen leg.; K.M. Olsen det.; PCKMO.

Comments: First records for the Western Palearctic, Europe and Norway.

78. *Tipula (Vestiplex) nubeculosa Meigen, 1804*

Material examined: Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, Lake Raifskoe, 75 m; 55.912374°, 48.731594°; 13 June–15 June 2009; 10 males; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Zelenodol'sk district, Volga-Kama State Nature Biosphere Reserve, “Raifa”, 100 m; 55.88868°, 48.71434°; 20 June–22 June 2009; 1 male; N.G. Petrov leg.; N.M. Paramonov det.; ZIN.

Comments: First records from RUE.

79. *Tipula (Yamatotipula) caesia Schummel, 1833*

Material examined: Russia: RUE, Samara Province, Stavropol'skiy district, Tashly village, mixed forest near Tashla lake, 143 m; 53.706128°, 49.760276°; 2 July 2003; 1 male; I.V. Lyubvina leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Kazan, district Derbyshki, Noksa River, 60 m; 55.8655°, 49.22461°; 17 June 2010; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: Confirmation of the presence in RUE.

80. *Tipula (Yamatotipula) coerulescens Lackschewitz, 1923*

Material examined: Russia: RUN, Republic of Karelia, Kem' district, Gridina river, 3 km SW of Gridino, 25 m; 65.9063°, 34.5989°; 4 July 2007; 1 male; A. Polevoi leg.; A. Polevoi det.; FRIP. Russia: RUE, Republic of Tatarstan, Bavlinsk district, Hansverkino village, Verhnii Kandiz River, 142 m; 54.02989°, 53.22563°; 11 May–12 May 2013; 7 males, 4 females; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN.

Comments: The species was first recorded from RUN in [115] without an indication of the exact location. Here we publish collection data of that record and the first record from RUE.

81. *Tipula (Yamatotipula) couckeii* Tonnoir, 1921

**Material:* Slovenia: Celje, in the forest near Celje; 46.22°, 15.26°; 6 April 2010; 1 male, 1 female; D. Janević photographed; P. Oosterbroek det.

Comments: First record from Slovenia based on photograph (Figure 2F).

82. *Tipula (Yamatotipula) freyana freyana* Lackschewitz, 1936

Material examined: Norway: Finnmark, Sør-Varanger, Djupdalen, 2 m; 69.696196°, 29.437916°; 3 July 2022; 1 female; K.M. Olsen leg.; K.M. Olsen det.; PCKMO.

Comments: First record from Norway.

83. *Tipula (Yamatotipula) iranensis* Theowald, 1978

Material examined: Russia: NC, Republic of Dagestan, Magaramkent district, near village Khtun-Kazmalyar, visitor center of the Dagestan Nature Reserve, 38 m; 41.8153°, 48.5289°; 3 July 2022; 2 males, 1 female; V. Lantsov leg.; V. Lantsov det.; ZIN.

Comments: First record from NC.

84. *Tipula (Yamatotipula) marginella* Theowald, 1980

Material examined: Russia: RUE, Republic of Tatarstan, Kazan, district Derbyshki, Noksa River, 60 m; 55.8655°, 49.22461°; 26 June 2009; 3 males, 2 females; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Republic of Tatarstan, Kazan, district Derbyshki, Noksa River, 60 m; 55.8655°, 49.22461°; 11 June 2010; 1 male; N.M. Paramonov leg.; N.M. Paramonov det.; ZIN. Russia: RUE, Samara Province, Stavropol'skiy district, Tashly village, mixed forest near Tashla lake, 143 m; 53.706128°, 49.760276°; 2 July 2003; 1 male; I.V. Lyubvina leg.; N.M. Paramonov det.; ZIN. Serbia: Sumarku, Deliblato Sands, 111 m; 44.831943°, 21.111992°; 28 April 2017; 2 males, 1 female; L.-P. Kolcsár and E. Török leg.; L.-P. Kolcsár det.; CKLP.

Comments: First records from RUE and Serbia.

85. *Tipula (Yamatotipula) quadrivittata* Staeger, 1840

Material examined: Russia: RUN, Republic of Karelia, Segezha district, Valday, 13 km NNE, 160 m; 63.55°, 35.56°; 29 June 2010; 1 male; A. Polevoi leg.; A. Polevoi det.; FRIP. Russia: RUN, Republic of Karelia, Olonets district, Mayachino, 20 m; 60.77707°, 32.81835°; 21 June 2012; 2 males; A. Polevoi leg.; A. Polevoi det.; FRIP. Russia: RUN, Republic of Karelia, Kem' district, Morzhovyi cape, 15 m; 65.552°, 34.7362°; 18 July 2003; 1 male; A. Polevoi leg.; A. Polevoi det.; FRIP.

Comments: The species was first recorded from RUN in [116] without an indication of the exact location. Here we publish collection data of those records.

86. *Tipula (Yamatotipula) riedeli* Mannheims, 1952

Material examined: North Macedonia: Novo Selo, Bistra Mts., Marlovo National Park, 990 m; 41.719438°, 20.82889°; 29 June 2017; 1 male; L.-P. Kolcsár and E. Török leg.; L.-P. Kolcsár det.; CKLP.

Comments: First record from North Macedonia.

4. Discussion

4.1. Species New to Science Described from Europe in 2010–2022

During the period 2010–2022, 44 crane-fly species new to science (35 Limoniidae, five Tipulidae and four Pediciidae) have been described from Europe, representing around 10% of the new species described worldwide during the same period [2]. Twenty-nine of the 44 new species (65%) are described from the Mediterranean region, one of the major biodiversity hotspots of the world [117]. No doubt many more species remain to be discovered and described in this region. Nearly 30% (13 spp.) of the recently described species were collected in the Iberian Peninsula and additional species new to science can be expected. Recently, 12 new species were described based on specimens collected in the Balkans (including Greek islands), of which eight species were from Greece. Future surveys will certainly reveal a higher biodiversity in these areas, including species new to science.

4.2. New Faunistic Records

In the last 13 years (2010–2022), many new faunistic studies have been published concerning European crane-flies, increasing the number of reported species in almost every country; only Ireland and Moldova did not have additions to their national checklists during this period (Table 2 and Table S2, Figure 6A). The largest increases in the number of species (including newly described species) are recorded for East European Russia (110 spp.), Central European Russia (100 spp.), Norway (94 spp.), Portugal (80 spp.) and the European part of Turkey (78 spp.). Based on the total number of reported species, the most species-rich countries are France (516 spp.), Italy (500 spp.), Slovakia (490 spp.), Switzerland (490 spp.), Germany (475 spp.) and Czech Republic (472 spp.). The high number of species reported from these countries can be explained by both the long faunistic and taxonomic tradition practiced in these countries and by the environmental heterogeneity of the region, as it includes several mountain areas (Pyrenees, Alps) which, in general, host high insect biodiversity [118]. In Southeastern Europe, the Romanian fauna (464 spp.) can be considered as best studied. However, a significant number of additional species can be expected as Romania is the second-most biogeographically diverse country in Europe (after Russia [119]) and includes the Carpathians, that are one of the major European biodiversity hotspots [120]. Portugal (154 spp.) and Spain (365 spp.) are still poorly investigated, and most species in these countries were only recently reported (80 species from Portugal, 69 from Spain; Figure 6A, Table S2). Although the Balkans are considered one of the major biodiversity hotspots in Europe [121], the number of reported species, especially in the Western Balkans, is comparatively low. It can be considered as the most poorly researched area in Europe for crane-flies, and the region where future surveys are most needed. To date, only 39 species are reported from Cyprus, of which four (~10%) are endemic to the island. However, a higher species richness is suspected as was recently documented for other dipteran groups [122]. The crane-fly fauna of Moldova and Kosovo are uninvestigated, and national checklists have not been compiled in the latter.

In total, 1063 (204 in this paper and 859 in the previous paper [3]) occurrence records belonging to 330 (86 in this paper and 244 in the previous paper [3]) crane-fly species, representing around 26% of all European crane-fly species, were presented. Several records are based on photos provided by amateur naturalists, proving the importance of citizen science and the collaboration between professional taxonomists and naturalists. At the same time, well maintained online databases are indispensable, such as the Catalogue of the Crane-flies of the World (CCW, <https://ccw.naturalis.nl/index.php>) (accessed on 31 December 2022). The CCW contains information about the taxonomy (including illustrations and photos), distribution, ecology and biology of species based on both scientific publications and unpublished but verified and properly annotated information.

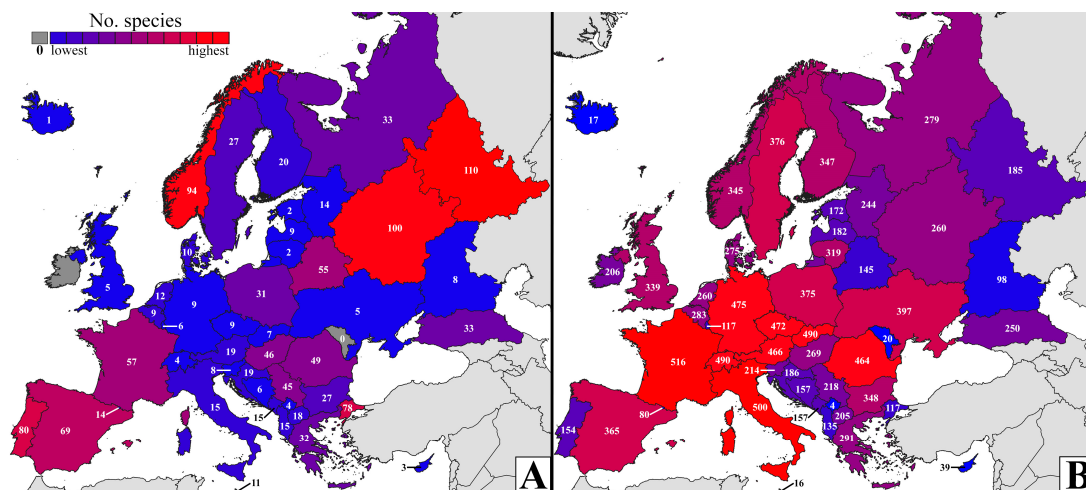


Figure 6. (A) Number of newly reported species 2010–2022 from each geopolitical unit, including species reported in this study. (B) Total number of reported crane fly species (Tipuloidea) per geopolitical units based on Table S2.

5. Conclusions

A major update has been provided to the inventory of European crane flies. However, country-level coverage is still uneven. Future surveys are severely needed for a more complete taxonomic and faunistic appraisal.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/d15030336/s1>, Table S1: Collection data in Darwin Core format; Table S2: List of European countries and geopolitical units, with the number of newly reported species (Tipuloidea) between 2010 and 2022 and the total number of reported crane fly species per geopolitical unit.

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References

1. Starý, J. Phylogeny of Tipulomorpha—An endless issue. *Acta Musei Sil. Sci. Nat.* **2021**, *69*, 277–281. [\[CrossRef\]](#)
2. Oosterbroek, P. Catalogue of the Craneflies of the World (Diptera, Tipuloidea: Pediciidae, Limoniidae, Cylindrotomidae, Tipulidae). Available online: <https://ccw.naturalis.nl/index.php> (accessed on 31 December 2022).
3. Kolcsár, L.-P.; Oosterbroek, P.; Gavryushin, D.; Olsen, K.M.; Paramonov, N.; Pilipenko, V.E.; Starý, J.; Polevoi, A.; Lantsov, V.; Eiroa, E.; et al. Contribution to the knowledge of Limoniidae (Diptera: Tipuloidea): First records of 244 species from various European countries. *BDJ* **2021**, *9*, e67085. [\[CrossRef\]](#)
4. Imada, Y. Moss mimesis *par excellence*: Integrating previous and new data on the life history and larval ecomorphology of long-bodied craneflies (Diptera: Cylindrotomidae: Cylindrotominae). *Zool. J. Linn. Soc.* **2021**, *193*, 1156–1204. [\[CrossRef\]](#)
5. Salmela, J. *Taxonomy, Species Richness and Biogeography of Finnish Crane Flies (Diptera, Tipuloidea)*; University of Turku: Turku, Finland, 2013.
6. Kolcsár, L.-P.; Paramonov, N.; Imada, Y.; Kato, D.; Gamboa, M.; Shinoka, D.; Kato, M.; Watanabe, K. Notes on the taxonomic status and distribution of some Cylindrotomidae (Diptera, Tipuloidea), with emphasis on Japanese species. *ZooKeys* **2022**, *1083*, 13–88. [\[CrossRef\]](#)
7. Lindner, E. Beiträge zur kenntnis der larven der Limoniidae (Diptera). *Z. Morph. u. Okol. Tiere* **1959**, *48*, 209–319. [\[CrossRef\]](#)
8. Podėnienė, V.; Rimšaitė, J.; Podėnas, S. Crane and winter flies (Diptera: Limoniidae, Pediciidae, Trichoceridae) associated with fungi in Lithuania. *Acta Zool. Litu.* **2010**, *20*, 232–241. [\[CrossRef\]](#)
9. Ujvárosi, L.; Bálint, M. Discovery of the second European *Amalopsis* species: An integrative survey of the widespread *Pedicia (Amalopsis) occulta* (Meigen, 1830) (Insecta, Diptera, Pediciidae). *Zootaxa* **2012**, *3189*, 1–28. [\[CrossRef\]](#)
10. Dénes, A.-L.; Kolcsár, L.-P.; Török, E.; Keresztes, L. Taxonomic revision of the Carpathian endemic *Pedicia (Crunobia) staryi* species-group (Diptera, Pediciidae) based on morphology and molecular data. *ZooKeys* **2016**, *569*, 81–104. [\[CrossRef\]](#)
11. Oosterbroek, P.; Lantsov, V.I. Review of the Western Palaearctic species of *Dolichopeza* Curtis (Diptera, Tipulidae). *Tijdschr. Entomol.* **2011**, *154*, 269–281. [\[CrossRef\]](#)
12. Lantsov, V.; Pilipenko, V.E. A new Palaearctic species of the subgenus *Lunatipula* (Diptera, Tipulidae) from the West Caucasus with a survey of the *caucasica* species group. *ZooKeys* **2021**, *1048*, 145–175. [\[CrossRef\]](#)
13. Vogtenhuber, P. Two new species of *Tipula*, subgenus *Lunatipula*, from Greece (Insecta: Diptera: Tipulidae). *Verh. Zool. Bot. Ges. Österreich* **2012**, *148/149*, 237–243.
14. Keresztes, L.; Menéndez, J.M.; Martin, L.; Török, E.; Kolcsár, L.-P. Description of a new species of *Mediotipula* from Albania, with consideration of the Eastern Mediterranean as a diversity hotspot (Diptera, Tipulidae). *ZooKeys* **2018**, *792*, 99–115. [\[CrossRef\]](#)
15. Pilipenko, V.E.; Salmela, J.; Vesterinen, E. Description and DNA barcoding of *Tipula (Pterelachisus) recondita* sp. n. from the Palaearctic region (Diptera, Tipulidae). *ZooKeys* **2012**, *192*, 51–65. [\[CrossRef\]](#)
16. Kolcsár, L.-P.; Török, E.; Keresztes, L. New faunistic records of Pediciidae (Diptera, Insecta) from Europe. *Entomol. Rom.* **2018**, *22*, 5–9. [\[CrossRef\]](#)
17. Eiroa, E.; Carles-Tolrá, M. Datos faunísticos nuevos sobre Tipuloideos de la Península Ibérica (Diptera: Tipuloidea: Limoniidae, Pediciidae y Tipulidae). *Boletín De La SEA* **2019**, *65*, 130–136.
18. Reusch, H.; Heiss, R. Kranich-Oder Langbeinmücken (Diptera: Tipuloidea). *Schr. Des Natl. Gesäuse* **2012**, *7*, 165–179.
19. Heiss, R.; Graf, W.; Keresztes, L.; Kolcsár, L.-P.; Török, E.; Vogtenhuber, P. Beitrag zur Tipuliden-Fauna Österreichs (Diptera: Tipulidae) mit Erstnachweisen für Österreich und für einzelne Bundesländer. *Entomol. Austriaca* **2016**, *23*, 63–85.
20. Vogtenhuber, P. Tipulidae (Insecta: Diptera). In *Checklists of the Austrian Fauna, No. 5*; Österreichische Akademie der Wissenschaften: Austria, Vienna, 2011; Volume 28, pp. 40–56.
21. Paramonov, N. To the understanding of the fauna of crane flies (Diptera, Tipuloidea) of Berezinsky Biosphere Reserve (Republic of Belarus). *Vesn. Vitebsk. State Univ.* **2019**, *3*, 93–98.
22. Paramonov, N.; Sushko, G.G. About perception of fauna of craneflies (Diptera: Tipuloidea) of Raised Bogs of the Republic of Belarus. *Vesn. Vitebsk. State Univ.* **2010**, *4*, 43–46.
23. Oosterbroek, P.; Mortelmans, J.; Soors, J.; Peeters, K. Langpootmuggen nieuw voor België: *Tipula pilicauda* en *T. trifasciculata* (Diptera, Tipulidae). *De Vliegenmepper* **2014**, *23*, 8–9.
24. Ujvárosi, L.; Kolcsár, L.-P.; Vaida, R. Additions to the Cylindrotomidae (Insecta, Diptera) fauna of Bulgaria and Romania. *Entomol. Rom.* **2011**, *16*, 47–50.
25. Hubenov, Z. Vertical distribution and comparative zoogeographical characteristic of dipteran fauna (Insecta: Diptera) according to the vegetation belts of the Pirin and Rila Mountains. *Hist. Nat. Bulg.* **2017**, *24*, 61–119.
26. Keresztes, L.; Kolcsár, L.-P.; Dénes, A.-L.; Török, E. Revealing unknown larvae of the *maxima* species group of the genus *Acutipula* Alexander, 1924 (*Tipula*, Tipuloidea, Diptera) using an integrative approach. *North West. J. Zool.* **2018**, *14*, 17–24.
27. Kolcsár, L.-P.; Ivković, M.; Ternjej, I. New records of Limoniidae and Pediciidae (Diptera) from Croatia. *ZooKeys* **2015**, *513*, 23–37. [\[CrossRef\]](#)
28. de Jong, H.; Adghir, A.; Bosch, E.-J.; Kettani, K. Taxonomy of *Nephrotoma guestfalica* (Westhoff, 1879) (Diptera, Tipulidae), with the description of a new subspecies from Morocco. *Tijdschr. Entomol.* **2020**, *163*, 31–45. [\[CrossRef\]](#)
29. Starý, J.; Vonička, P. Limoniidae and Pediciidae (Diptera: Tipulomorpha) of the Jizerské Hory Mts, Frýdlant region, and Liberec environs (northern Bohemia, Czech Republic). *Sborník Sev. Muz. Přírodní Vědy* **2018**, *36*, 45–83.

30. Salmela, J. Annotated list of Finnish crane flies (Diptera: Tipulidae, Limoniidae, Pediciidae, Cyndrotomidae). *Entomol. Fenn.* **2012**, *22*, 219–242. [[CrossRef](#)]
31. Salmela, J. Biogeographic patterns of Finnish crane flies (Diptera, Tipuloidea). *Psyche* **2012**, *2012*, 913710. [[CrossRef](#)]
32. Viitanen, E. *Tipula luna* Westhoff, 1879 (Diptera, Tipulidae) returned to the Finnish fauna. *Sahlbergia* **2017**, *23*, 8–9.
33. Rasimus, I. Suomelle uusi vaaksiaislaji *Tipula (Savtshenkia) subsignata subsignata* Lackschewitz, 1933. *Sahlbergia* **2021**, *27*, 2–4.
34. Labat, F. Le macrobenthos du bassin de la Dordogne. 3^e note: Haute-Dordogne, faune printanière. *Bull. Soc. Linn. Bordeaux* **2013**, *41*, 61–74.
35. Tillier, P.; Claude, J.; Decoin, R. First record for France of *Pedicia (Amalopsis) fusca* Ujvárosi & Bálint, 2012 (Diptera, Pediciidae). *Bull. Soc. entomol. Fr.* **2020**, *125*, 240–242. [[CrossRef](#)]
36. Tillier, P.; Forêt, J.; Clerc, E. Three species of *Dicranota* Zetterstedt, 1838, new for the French fauna and updated list of Pediciidae from France (Diptera). *Bull. Soc. Entomol. France.* **2021**, *126*, 183–188. [[CrossRef](#)]
37. Tillier, P.; Claude, J.; Decoin, R. Une espèce de Pédicie nouvelle pour la France découverte dans la Réserve Naturelle du Lac de Remoray (Doubs): *Ula mixta* Starý, 1983 (Diptera Pediciidae). *L'Entomologiste* **2021**, *77*, 285–286.
38. Dufour, C.; Tillier, P.; Langlois, D. *Tipula (Pterelachisus) mayerduerii* Egger, 1863: Aide à l'identification de l'espèce et données récentes en France et en Suisse (Diptera, Tipulidae). *Bull. Soc. Neuchâtel. Sci. Nat.* **2020**, *140*, 25–33.
39. Kramer, J. *Tipula (Pterelachisus) mutila* Wahlgren (Diptera, Tipulidae) new to France and its status in Britain. *Dipter. Dig. (2nd Ser.)* **2012**, *19*, 155–156.
40. Kramer, J. The First Record of *Tipula (Mediotipula) stigmatella* Schummel (Diptera, Tipulidae) in France. *Dipter. Dig. (2nd Ser.)* **2018**, *24*, 161–163.
41. Quindroit, C.; Lemoine, G. Résultats de captures de Tipulomorpha (Diptera, Nematocera) effectuées lors de deux campagnes de piégeage à l'aide de tentes Malaise dans les marais de Saint-Josse-sur-Mer (2017) et de Roussent (2020), et découverte d'espèces nouvelles pour le Pas-de-Calais et pour le territoire Français. *L'Entomologiste Picard* **2020**, *33*, 22–29.
42. Quindroit, C.; Lemoine, G. Actualisation des connaissances sur la répartition des Tipuloidea du Nord et du Pas-de-Calais avec la mention de deux espèces de Tipulidae nouvelles pour la faune de France: *Tipula (Lunatipula) affinis* Schummel, 1833 et *Tipula (Pterelachisus) winthemi* Lackschewitz, 1932 et citation de 14 autres nouvelles espèces pour ce territoire. *Bull. Soc. Entomol. N. France* **2021**, *380*, 1–12.
43. Tillier, P.; Dufour, C.; Dusoulier, F. *Tipula (Pterelachisus) glacialis* (Pokorny, 1887) et *Tipula (Vestiplex) crolina* Dufour, 1992, deux espèces de Tipules d'altitude présentes dans les Alpes Françaises (Diptera, Tipulidae). *L'Entomologiste* **2020**, *76*, 113–115.
44. Tillier, P.; Maffli, C.; Quindroit, C. Premières mentions pour la France d'une Tipule rarement signalée en Europe: *Tipula (Pterelachisus) cinereocincta cinereocincta* Lundstrom, 1907 (Diptera, Tipulidae). *Bull. Soc. entomol. Fr.* **2020**, *125*, 187–192. [[CrossRef](#)]
45. Tillier, P. Two species of crane flies new to France: *Tipula (Pterelachisus) pseudopruinosa* Strobl, 1895 et *Tipula (Pterelachisus) luridorostris* Schummel, 1833 (Diptera Tipulidae). *L'Entomologiste* **2021**, *77*, 41–44.
46. Tillier, P.; Forêt, J. First record for France of a poorly known species in Europe: *Tipula (Savtshenkia) tulipa* Dufour, 1983 (Diptera, Tipulidae). *Bull. Soc. entomol. Fr.* **2021**, *126*, 189–190. [[CrossRef](#)]
47. Heiss, R.; Merkel-Walner, G. Ein Beitrag zur Schnaken-Fauna Bayerns, neue und wenig bekannte Arten aus Malaisfallen-Fängen 2007 bis 2009 (Insecta: Diptera: Tipulidae). *Bezug. der Beitr. Bayer. Ent.* **2013**, *12*, 17–30.
48. Heiss, R.; Weber, D.; Zaenker, S. Erstnachweis von *Tipula (Schummelia) zonaria* Goetghebuer, 1921 für Deutschland aus Höhlen in Bayern und Rheinland-Pfalz sowie weitere Tipuliden-Beobachtungen aus Höhlen und künstlichen, höhlenartigen Hohlräumen verschiedener Bundesländer. *Mainz. Nat. Archiv.* **2021**, *58*, 235–250.
49. Heiss, R. Tipulidae (Diptera). In *Biodiversität des Südwestlichen Dinkelbergrandes und des Rheintals bei Grenzach-Wyhlen: Eine Bestandsaufnahme im Südwestlichen Einfallstor Deutschlands für Neue Arten in der Folge des Klimawandels*; Ssymank, A., Doczkal, D., Eds.; Naturkundliches Museum Mauritium: Altenburg, Germany, 2017; pp. 557–588.
50. Heiss, R. *Tipula (Lunatipula) humilis* Staeger, 1840—Erstnachweis für die Fauna Deutschlands und Checkliste der Tipulidae Mecklenburg-Vorpommerns (Diptera, Tipulidae). *Entomol. Nachr. Und Ber.* **2019**, *63*, 33–45.
51. Merkel-Wallner, G.; Kehlmaier, C.; Heiss, R. Zweiflugler (Diptera). In *Biologische Vielfalt im Nationalpark Bayerischer Wald. Wissenschaftliche Schrifteihe des Nationalparks Bayerischer Wald, Sonderband*; Muller, J., Bassler, C., Jehl, H., Eds.; Nationalparkverwaltung Bayerischer Wald: Grafenau, Germany, 2011; Volume 207–214.
52. Wolz, I. Erstnachweis der nücke *Tipula (Lunatipula) truncata truncata* Loew, 1873 in Deutschland aus Bruchstückfunden im Fledermauskot. *Bezug. der Beitr. Bayer. Ent.* **2016**, *16*, 1–7.
53. Kolcsár, L.-P.; Keresztes, L. New records of Pediciidae (Diptera: Tipuloidea) from Hungary. *Folia Ent. Hung.* **2016**, *77*, 119–126. [[CrossRef](#)]
54. Kolcsár, L.-P.; Soltész, Z. New records of Tipuloidea (Diptera, Insecta) from Hungary. *Folia Ent. Hung.* **2018**, *79*, 163–176. [[CrossRef](#)]
55. Bilalli, A.; Ibrahim, H.; Musliu, M.; Grapci-Kotori, L.; Geci, D.; Stamenković, V.S.; Hinič, J.; Mitič-Kopanja, D.; Keresztes, L. New records of the crane flies (Diptera: Limoniidae, Tipulidae) from the Western Balkans. *J. Entomol. Res. Soc.* **2021**, *23*, 141–152. [[CrossRef](#)]
56. Aistleitner, E. Fragmenta Entomofaunistica XVIII: Faunistische Notizen zu Diptera aus Mitteleuropa, aus Makaronesien, dem Mediterranraum und aus dem Iran (Insecta: Diptera). In *Memoriam Wolfgang Schacht. Nachr. Bl. Bayer. Entomol.* **2011**, *60*, 107–114.

57. Aistleitner, E. Schnaken (Diptera: Nematocera: Tipuloidea) aus Vorarlberg (Österreich) un dem Fürstentum Liechtenstein. *Beiträge Zur Entomofaunist. Abkürzung* **2015**, *16*, 89–102.
58. Reusch, H.; Weber, D. Stelzmücken (Diptera: Limoniidae Und Pediciidae) aus Höhlen des Großherzogtums Luxemburg. *Ferrantia* **2013**, *69*, 268–275.
59. Oosterbroek, P.; Dek, J.; de Jong, H. The crane fly *Tipula trifascingulata* new for the Netherlands (Diptera: Tipulidae). *Ned. Faun. Meded.* **2013**, *39*, 43–48.
60. Olsen, K.M.; Andersen, T. Diptera from rich fens and other habitats in eastern part of Innlandet, Southeastern Norway. III. Cylindrotomidae, Limoniidae and Pediciidae (Tipuloidea). *Nor. J. Entomol.* **2021**, *68*, 203–222.
61. Hofsvang, T.; Olsen, K.M.; Oosterbroek, P.; Boumans, L. The Norwegian species of the genus *Tipula* Linnaeus, 1758, with ten Species of Tipulidae new to Norway and an annotated list of nordic Tipulidae, including distributional data for Norway (Diptera, Tipulidae). *Nor. J. Entomol.* **2019**, *66*, 99–150.
62. Boumans, L.; de Jong, H.; Oosterbroek, P. The originally East Palaearctic crane fly *Tipula* (*Platytipula*) *moiwana* (Matsumura, 1916) (Diptera, Tipulidae) found in Oslo, an addition to the Norwegian fauna. *Nor. J. Entomol.* **2013**, *60*, 159–162.
63. Olsen, K.M.; Andersen, T. Diptera from rich fens and other habitats in eastern part of Innlandet, Southeastern Norway. VII. Tipulidae (Tipuloidea). *Nor. J. Entomol.* **2022**, *69*, 36–44.
64. Oboňa, J.; Dvořák, L.; Dvořáková, K.; Ježek, J.; Kovács, T.; Murányi, D.; Słowińska, I.; Starý, J.; van der Weele, R.; Manko, P. Faunistic records of some Diptera families from the Babia Góra Massif in Poland. *Dipteron* **2019**, *35*, 118–131.
65. Wiedeńska, J. Crane-flies of the families Limoniidae and Pediciidae (Diptera, Nematocera) of the Gorce National Park. Part 3. Faunistic Data. *Ochr. Beskidów Zach.* **2017**, *7*, 7–31.
66. Syratt, M. *Tipula* Linnaeus, 1758 (Diptera: Tipulidae) species new to Poland with notes on the distribution of a further four species. *Dipteron* **2022**, *38*, 1–12. [[CrossRef](#)]
67. Starý, J. Some records of Limoniidae and Pediciidae (Diptera) from Portugal and Spain. *Acta Mus. Sil. Sci. Nat.* **2014**, *63*, 83–95. [[CrossRef](#)]
68. Grosso-Silva, J.M.; Soares-Vieira, P. The genus *Ctenophora* Meigen new to Portugal, with records of two species: *C. festiva* Meigen and *C. ornata* Meigen (Diptera, Tipulidae). *Arq. Entomol.* **2011**, *5*, 67–68.
69. Hancock, E.G.; Kramer, J.; Lyszkowski, R.M. A European record of the Nearctic species *Nephrotoma suturalis wulpiana* (Bergroth, 1888) (Diptera: Tipulidae) in Portugal. *Entomol. Mon. Mag.* **2016**, *152*, 157–161.
70. Oosterbroek, P.; Starý, J.; Andrade, R.; Hancock, E.G.; Ferreira, S. The crane flies of continental Portugal (Diptera, Limoniidae, Pediciidae, Tipulidae) including 28 species new for Portugal. *Bol. Asoc. Esp. Entomol.* **2020**, *44*, 317–358.
71. Kolcsár, L.-P.; Török, E.; Keresztes, L. An annotated list of Pediciidae (Insecta, Diptera) from Romania with a revision of the literature data. *Entomol. Rom.* **2012**, *17*, 21–27.
72. Török, E.; Kolcsár, L.-P.; Keresztes, L. An annotated list of Tipulidae (Insecta, Diptera) from Romania. *Entomol. Rom.* **2013**, *18*, 15–20.
73. Kolcsár, L.-P.; Török, E.; Keresztes, L. Crane flies (Diptera: Tipuloidea) and phantom crane flies (Diptera: Ptychopteridae) fauna around a metropolis (Cluj-Napoca, Romania). *Acta Sci. Transylvanica Biol.* **2013**, *21*, 66–78.
74. Paramonov, N.; Klepikov, M. Annotated checklist of the Tipuloidea (Diptera) of the Yaroslavl Province. *Eversmannia* **2014**, *39*, 35–38.
75. Paramonov, N.; Pilipenko, V.E. Annotated checklist of the Tipuloidea (Diptera) of the Tver Province. *Eversmannia* **2016**, *47*, 96–102.
76. Pilipenko, V.E. Records of two rare species of crane flies (Diptera, Tipulidae) from Tsaritsyno Park in Moscow. In *Protection of wildlife and the natural complex of Moscow. Proceedings of the scientific and applied conference commemorating the centennial anniversary of the birth of K.N.; Blagosklonov*; Moscow, Russia, 2010; pp. 88–90.
77. Pilipenko, V.E.; Ruchin, A.B.; Semishin, G.B. Crane fly fauna (Diptera: Limoniidae, Pediciidae, Tipulidae) of the Republic of Mordovia, Russia. *Biodiversitas* **2020**, *21*, 355–369. [[CrossRef](#)]
78. Pilipenko, V.E.; Paramonov, N. First record of the crane-fly *Nephrotoma nasuta* (Diptera, Tipulidae) in Russia. In *Proceedings of the 14th Congress of the Russian Entomological Society*, St. Petersburg, Russia, 27 August–1 September 2012; p. 344.
79. Humala, A.; Polevoi, A.V. Promoting the knowledge of the entomofauna of the Onezhskoye Pomorye National Park. *Trans. KarRC RAS* **2022**, *1*, 21–48. [[CrossRef](#)]
80. Jakovlev, J.; Polevoi, A.; Humala, A. 3.6 Insect fauna of Zaonezhye Peninsula and adjacent islands. In *Biogeography, Landscape, Ecosystems and Species of Zaonezhye Peninsula, in Onega Lake, Russian Karelia*; Lindholm, T., Jakovlev, J., Kravchenko, A., Eds.; Reports of the Finnish Environment Institute; Finnish Environment Institute: Helsinki, Finland, 2014; Volume 40, pp. 257–338. ISBN 978-952-11-4405-9.
81. Humala, A.; Polevoi, A. Records of rare and noteworthy insect species (Insecta) in the Republic of Karelia. *Trans. KarRC RAS* **2015**, *6*, 19–46. [[CrossRef](#)]
82. Polevoi, A.; Pilipenko, V.E. The first records of the crane flies *Tipula apicispina* and *T. stenostyla* (Diptera: Tipulidae) from Russian Karelia with new data on their bionomics. *Zoosystematica Ross.* **2016**, *25*, 380–386. [[CrossRef](#)]
83. Pilipenko, V.E. New records of the crane fly *Tipula* (*Savtshenkia*) *confusa* (Diptera, Tipulidae) from NW Russia. *Trans. KarRC RAS* **2011**, *2*, 140–141.
84. Lantsov, V. The genus *Prionocera* (Diptera: Tipulidae) in the fauna of the Caucasus. *Cauc. Entomol. Bull.* **2014**, *10*, 151–154. [[CrossRef](#)]

85. Lantsov, V. New records of crane flies (Diptera: Tipuloidea: Limoniidae, Tipulidae) in the spring fauna of Agrakhanski and Kizlyarski Territories of Daghestan State Nature Reserve (the North Caucasus). *Izv. RAS SamSC* **2017**, *19*, 284–290.
86. Lantsov, V. Biological diversity of crane flies (Diptera, Tipuloidea) in the Natural Landscapes of Dagestan (North-East Caucasus, Russia). In Proceedings of the Materials of XI All-Russian Dipterological Symposium, Voronezh, Russia, 24–29 August 2020; pp. 292–296.
87. Lantsov, V.; Bibin, A. *Ctenophora flaveolata* (Fabricius, 1794) (Diptera: Tipulidae) a crane fly species new for Russia and the Caucasus. *Cauc. Entomol. Bull.* **2019**, *15*, 207–209. [[CrossRef](#)]
88. Pilipenko, V.E. The first record of the crane-fly *Ctenophora (Cnemoncosis) ornata* Meigen, 1818 (Diptera: Tipulidae) from Russia. In Proceedings of the Proceedings of X All-Russian Dipterological Symposium, Krasnodar, Russia, 23–28 August 2016; pp. 275–277.
89. Pilipenko, V.E.; Lantsov, V.I. *Ctenophora ykrashennaya Ctenophora ornata* Meigen, 1818. In *Red Data Book of Krasnodar Territory (Animals), Third edition*; Zamotaylov, A.S., Lokhman, Y.V., Volfov, B.I., Eds.; Administration of Krasnodar Territory: Krasnodar, Russia, 2017; p. 415.
90. Kolcsár, L.-P.; Török, E.; Keresztes, L. First record of *Cylindrotoma distinctissima* (Meigen, 1818) from Serbia and new data on the occurrence of Cylindrotomidae (Diptera) in Bulgaria and Romania. *Fragm. Faunist.* **2018**, *60*, 107–112. [[CrossRef](#)]
91. Oboňa, J.; Starý, J. Description of the larva and pupa of *Nasiternella regia* Riedel, 1914 (Diptera: Pediciidae) from Slovakia, with notes on ecology and behaviour. *Biologia* **2013**, *68*, 345–350. [[CrossRef](#)]
92. Pujante, A.M.; Rodríguez, S.; Torrijos, L.; Gómez, R.G.; Suárez, L. Primera cita de *Phalacrocerca replicata* (Linnaeus, 1758) (Diptera, Cylindrotomidae) para la Península Ibérica. *Bol. Asoc. Esp. Entomol.* **2016**, *40*, 531–533.
93. Hancock, E.G.; Hewitt, S.M.; Horsfield, D.; Lyszkowski, R.M.; Macgowan, I.; Ricarte, A.; Rotheray, G.; Watt, K. Nematocera flies recorded in Serra do Courel, Northwest Spain, May 2012 (Diptera: Anisopodidae, Blepharoceridae, Cylindrotomidae, Limoniidae, Pediciidae, Tipulidae and Trichoceridae) including descriptions of two new species of Limoniidae. *Zootaxa* **2015**, *3911*, 231–244. [[CrossRef](#)]
94. Keresztes, L.; Eiroa, E.; Martínez, J. Observaciones sobre los Limoniidae y Pediciidae de Asturias (norte Península Ibérica) (Diptera, Tipuloidea). *Bol. Asoc. Esp. Entomol.* **2022**, *46*, 191–198.
95. Mederos, J.; Gago, S.; Eiroa, E. Primera cita de *Tricyphona (Tricyphona) contraria* Bergroth, 1888 (Diptera: Pediciidae) para la Península Ibérica y otros registros interesantes de Tipuloidea capturados en cuevas de Cataluña (España). *Butll. Inst. Catalana Hist. Nat.* **2018**, *82*, 89–96.
96. Mederos, J.; Eiroa, E. Nuevos datos de Limoniidae, Pediciidae y Tipulidae (Diptera: Tipuloidea) de los Pirineos Centrales (Cataluña, España). *Boletín De La SEA* **2015**, *56*, 265–268.
97. Carles-Tolrá, M. Algunos Tipúlidos de España (Diptera: Tipulidae). *Heteropterus Rev. Ent.* **2010**, *10*, 55–57.
98. Carles-Tolrá, M. Algunos Dípteros capturados en el País Vasco y Navarra (España) (Insecta, Diptera). *Heteropterus Rev. Ent.* **2011**, *11*, 35–48.
99. Carles-Tolrá, M. Estudio faunístico y comparativo de Dípteros capturados en un hayedo y un bosque mixto situados en Artikutza (Bavaria, España) (Insecta, Diptera). *Boletín De La SEA* **2019**, *64*, 75–88.
100. Mederos, J. Confirmación de la presencia de *Nephrotoma suturalis wulpiana* (Bergroth, 1888) en España y novedades para la fauna de Limoniidae y Tipulidae (Diptera) de la Serra de Collserola, Cataluña. *Butll. Inst. Catalana Hist. Nat.* **2018**, *82*, 141–143.
101. Hancock, E.G.; Quirce, C.; Marcos-García, M.A. A second European record for *Nephrotoma ferruginea* (Fabricius, 1805), a potential insect pest, with other Iberian records of *Nephrotoma* species (Diptera: Tipulidae). *Entomol. Mon. Mag.* **2015**, *151*, 149–153.
102. Mederos, J.; Miralles-Núñez, A.; Marqués-Mora, E. Primeros registros de *Nigrotipula nigra nigra* (Linnaeus, 1758) para la Península Ibérica (Diptera: Tipulidae). *Butll. Inst. Catalana Hist. Nat.* **2021**, *85*, 187–190.
103. Artportalen Website on Swedish Flora and Fauna. Available online: <https://www.artportalen.se/> (accessed on 15 November 2022).
104. Andersson, M. *Tipula serrulifera* (Diptera, Tipulidae) en sydlig storharkrank ny för Sverige. *Entomol. Tidskr.* **2016**, *134*, 171–174.
105. Andersson, M.; Brodin, Y. Nya arter av harkrankar (Diptera: Limoniidae, Tipulidae) för Sverige. *Entomol. Tidskr.* **2019**, *140*, 81–87.
106. Salmela, J. Contribution to knowledge on Swedish crane flies (Diptera, Tipuloidea). *Entomol. Tidskr.* **2011**, *132*, 113–118.
107. Tillier, P.; Claude, J.; Decoin, R.; Dufour, C. Nouvelle station Française d'une Tipule très rarement collectée, *Tipula (Emdotipula) gomina* Dufour, 2003, et description de la femelle (Diptera, Tipulidae). *Bull. Soc. Entomol. N. France* **2020**, *125*, 225–230. [[CrossRef](#)]
108. Weibel, U.; Kessler, D. Erstnachweis von *Ctenophora elegans* Meigen & Wiedemann 1818 für die Schweiz und weitere aktuelle Nachweise von Kammschnaken (Diptera: Tipulidae) im Kanton Schaffhausen. *Mitt. Naturforsch. Ges. Schaffhausen* **2021**, *49*, 14–18.
109. Özgül, O.; Koç, H. Contributions to the Pediciidae (Diptera) fauna of Turkey with six new records. *Turk. J. Zool.* **2016**, *40*, 779–784. [[CrossRef](#)]
110. Koç, H.; Özgül, O.; Hasbenli, A. The Tipulidae (Diptera) fauna of the Marmara region, with nine new records and one new genus record (*Tanyptera* Latreille, 1804) for Turkey. *Turk. J. Entomol.* **2015**, *39*, 47–53. [[CrossRef](#)]
111. Kolcsár, L.-P.; Török, E. New faunistic records of Pediciidae (Diptera) from Ukraine. *Ukr. Entomofaunistyka* **2017**, *8*, 25–26.
112. Oboňa, J.; Dvořák, L.; Manko, P.; Mariychuk, R.; Starý, J.; Tkoč, M. Some Diptera newly recorded from Ukraine. *Acta Mus. Sil. Sci. Nat.* **2017**, *66*, 41–48. [[CrossRef](#)]
113. de Jong, Y.; Verbeek, M.; Michelsen, V.; de Place Björn, P.; Los, W.; Steeman, F.; Bailly, N.; Basire, C.; Chylarecki, P.; Stloukal, E.; et al. Fauna Europaea—All European animal species on the Web. *BDJ* **2014**, *2*, e4034. [[CrossRef](#)] [[PubMed](#)]

114. de Jong, H. In search of historical biogeographic patterns in the Western Mediterranean terrestrial fauna. *Biol. J. Linn. Soc.* **1998**, *65*, 99–164. [[CrossRef](#)]
115. Humala, A.; Polevoi, A.V. Insects. In *Rupestrian Landscapes of the White Sea Karelian Coast: Natural Characteristics, Economic Utilization, Conservation*; Gromtsev, A.N., Ed.; Karelian Research Centre of RAS: Petrozavodsk, Russia, 2008; pp. 125–136. ISBN 978-5-9274-0333-2.
116. Polevoi, A.; Humala, A. Insects. In *Data of Inventory of Natural Complexes and Scientific Feasibility Study of the Syrovatka Landscape Reserve*; Gromtsev, A.N., Ed.; Karelian Research Centre of RAS: Petrozavodsk, Russia, 2003; pp. 67–72.
117. Hewitt, G.M. Mediterranean Peninsulas: The evolution of hotspots. In *Biodiversity Hotspots*; Zachos, F.E., Habel, J.C., Eds.; Springer: Berlin/Heidelberg, Germany, 2011; pp. 123–147. ISBN 978-3-642-20991-8.
118. Schmitt, T. Biogeographical and evolutionary importance of the European high mountain systems. *Front. Zool.* **2009**, *6*, 9. [[CrossRef](#)] [[PubMed](#)]
119. Cervellini, M.; Zannini, P.; Di Musciano, M.; Fattorini, S.; Jiménez-Alfaro, B.; Rocchini, D.; Field, R.; Vetaas, R.O.; Irl, S.D.H.; Beierkuhnlein, C.; et al. A grid-based map for the Biogeographical Regions of Europe. *BDJ* **2020**, *8*, e53720. [[CrossRef](#)]
120. Bálint, M.; Ujvárosi, L.; Theissinger, K.; Lehrian, S.; Mészáros, N.; Pauls, S.U. The Carpathians as a major diversity hotspot in Europe. In *Biodiversity Hotspots*; Zachos, F.E., Habel, J.C., Eds.; Springer: Berlin/Heidelberg, Germany, 2011; pp. 189–205.
121. *Balkan Biodiversity*; Griffiths, H.I.; Kryštufek, B.; Reed, J.M. (Eds.) Springer: Dordrecht, The Netherlands, 2004; ISBN 978-90-481-6732-6.
122. van Steenis, J.; van Zuijlen, M.P.; van Steenis, W.; Makris, C.; van Eck, A.; Mengual, X. Hoverflies (Diptera: Syrphidae) of Cyprus: Results from a collecting trip in October 2017. *Bonn Zool. Bull.* **2019**, *68*, 125–146.

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