

Limoniidae (Diptera) fauna of the Marmara region with 23 new records for Turkey

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Abstract: Ninety-five limoniid taxa have been reported to occur in Turkey. This study, conducted from June 2008 to April 2011, was aimed at describing the Limoniidae (Diptera) fauna in the Marmara region of Turkey. Twenty-three Limoniidae taxa were recorded for the first time for the Turkish fauna. These species are: *Crypteria* (s. str.) *limnophiloides* Bergroth, 1913; *Ellipterooides* (*Protogonomyia*) *alboscuteallatus* (von Roser, 1840); *Erioptera* (s. str.) *tenuirama* Savchenko, 1972; *Gnophomyia* *lugubris* (Zetterstedt, 1838); *Gonomyia* (s. str.) *tenella* (Meigen, 1818); *Molophilus* (s. str.) *directidens* Stary, 1976; *Molophilus* (s. str.) *lackschewitzianus lackschewitzianus* Alexander, 1953; *M.* (s. str.) *serpentiger* Edwards, 1938; *Ormosia* (s. str.) *furcata* Savchenko, 1973; *Rhypholophus* *varius* (Meigen, 1818); *Dactylolabis* (s. str.) *sexmaculata* (Macquart, 1826); *Eloeophila* *submarmorata* (Verrall, 1887); *Euphyllidorea* *aperta* (Verrall, 1887); *Prionolabis* *hospes* (Egger, 1863); *Achyrolimonia* *decemmaculata* (Loew, 1873); *Atypophthalmus* (s. str.) *inustus* (Meigen, 1818); *Dicranomyia* (s. str.) *autumnalis* (Staeger, 1840); *Dicranoptycha* *paralivescens* Stary, 1972; *Heliopsis* (s. str.) *flavus* (Walker, 1856); *H.* (s. str.) *longirostris longirostris* (Meigen, 1818); *H.* (s. str.) *pallirostris* Edwards, 1921; *Limonia* *albifrons* (Meigen, 1818); and *Neolimonia* *dumetorum* (Meigen, 1804). Distributional data in the study area and Palearctic distributions for each new record are given.

Key words: Diptera, Limoniidae, Turkey, Marmara region, fauna, new records

1. Introduction

Tipuloids are dipteran flies with thin, delicate bodies and long legs. Tipuloidea includes the families Limoniidae, Cylindrotomiidae, Pediciidae, and Tipulidae as accepted by many researchers today. They have no ocellus. However, in the dorsal thorax they have a V-shaped mesonotal spur, fragile long legs, and two anal veins that reach up to the edge of the wings (Dienske, 1987; Savchenko, 1989a, 1989b; Reusch and Oosterbroek, 1997; Oosterbroek, 2006). The Limoniidae can be easily distinguished from the other families mentioned above by the venation of the wings, antennae segment number, terminal segment of the maxillary palp, thorax sclerites, and structures of the male and female terminalia. Sc, as opposed to Tipulidae, connects both to C and R together. In Limoniidae, the terminal segment of the maxillary palp is short or the length of the first three segments, while in Tipulidae it is long, even longer than the first three segments combined. While the antenna is 13-segmented in Tipulidae, it is 14- or 16-segmented in Limoniidae (except *Hexatoma* and *Lucida*). Limoniidae consists of medium- or small-sized flies with body size generally between 2 mm and 11 mm (Oosterbroek, 2006).

Limoniidae has 10,547 recognized taxa worldwide. In the Palearctic region, there are 1650 recognized taxa, 735 of which are distributed in the West Palearctic region (Oosterbroek, 2015). About 560 limoniid species and subspecies belonging to 70 genera are known to exist in Europe (Oosterbroek, 2006).

Before 2005, there were only 20 known limoniid taxa in Turkey, distributed in Antalya, Amasya, Ankara, Bursa, Hakkari, and Nevşehir (Savchenko et al., 1992; Koç et al., 2005). Since 2005, this number has risen to 118 (Oosterbroek, 2015). The role of publications originating in southwestern Anatolia and the inner-west Aegean regions was crucial in this increase (Koç et al., 2006, Özgül et al., 2006; Koç, 2008; Özgül and Koç, 2010, 2012, 2014). This study, conducted from June 2008 to April 2011, was aimed at describing the Limoniidae (Diptera) fauna in the Marmara region of Turkey.

2. Materials and methods

The Marmara region is divided into four subregions: the Yıldız mountains, Ergene, Çatalca-Kocaeli, and the southern Marmara subregion. It contains 11 provinces

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including Edirne (Ed), Tekirdağ (Te), Kırklareli (Ki), İstanbul (İs), İzmit (İz), Yalova (Ya), Sakarya (Sa), Bilecik (Bi), Bursa (Bu), Balıkesir (Ba), and Çanakkale (Ça). The research area is between the European and Asian continents and serves as a passage between the Balkan Peninsula and Anatolia (Figure 1).

Adult Tipulidae samples were collected from aquatic and semiaquatic areas, forests, sandy areas, meadows, shrubbery, steppes, and unnatural habitats located in the research area using a sweep net (40 cm in diameter). For preparations, male genitalia were dissected and cleared according to Dienske (1987). Classification and Palearctic distributions of taxa follow Oosterbroek (2015). All specimens were preserved either in a 70% mixture of alcohol and glycerin (3:1) solution or by pinning and drying. Samples were deposited in the collection of the Zoological Laboratory of the Department of Biology, Muğla Sıtkı Koçman University, Muğla, Turkey (ZMMU). Figures of male wings and male genitalia of new records are given (Figures 2–47).

3. Results

A total of 3907 specimens including 2774 males were collected in the research area. Ninety-five taxa were identified, 23 of which were recorded from Turkey for the first time (Table 1).

3.1. *Crypteria* (s. str.) *limnophiloides* Bergroth, 1913 (Figures 2 and 25)

Material examined: 1 ♂. Kırklareli: *Demirköy*, İğneada, Beğendik road 5 km (41°54'N, 27°10'E), 30 m, 28.x.2009, 1 ♂. New record for Turkish Limoniidae fauna.

Palearctic distribution: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Lithuania, Montenegro, Norway, Poland, Romania, Slovakia, Spain, Sweden, Switzerland, Ukraine, Russia, Georgia (Oosterbroek, 2015).

3.2. *Ellipteroides* (*Protogonomyia*) *alboscuteatus* (von Roser, 1840) (Figures 3 and 26)

Material examined: 21 ♂♂, 3 ♀♀. Bursa: *Osmangazi*, Uludağ, Bağlı (40°04'N, 29°06'E), 1050 m, 25.vii.2009, 1 ♂; 25.viii.2009, 2 ♀♀; Uludağ National Park (40°08'N, 29°01'E), 875 m, 06.viii.2010, 2 ♂♂. Çanakkale: *Bayramiç*,



Figure 1. Study area in Turkey.

Table 1. The distribution of taxa numbers detected in the Marmara region according to provinces.

	Balıkesir	Bilecik	Bursa	Çanakkale	Edirne	İstanbul	Kırklareli	Kocaeli	Sakarya	Tekirdağ	Yalova	New records
Chioneinae	11	6	17	20	11	3	19	6	12	8	0	10
Dactylobabinae	0	0	1	1	0	0	2	0	0	0	0	1
Limnophilinae	9	4	15	12	2	6	14	5	6	2	0	3
Limoniinae	18	10	17	17	11	10	22	15	7	5	2	9
Total	38	20	50	50	24	19	57	26	25	15	2	23

Evciler, Ayazmana (39°44'N, 26°51'E), 505 m, 13.vii.2008, 5 ♂♂, 2 ♀♀; (39°44'N, 26°50'E), 430 m, 18.viii.2008, 9 ♂♂; 26.vii.2009, 15 ♂♂, 5 ♀♀; Kaz Mountains, 11 km (39°42'N, 26°47'E), 880 m, 19.viii.2008, 1 ♂; Ayazma (39°45'N, 26°50'E), 210 m, 09.viii.2010, 1 ♂. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Albania, Austria, Belgium, Bulgaria, Czech Republic, France, Germany, Great Britain, Hungary, Italy, Lithuania, Macedonia, the Netherlands, Romania, Serbia, Slovakia, Slovenia, Spain, Switzerland, Ukraine, Morocco, Lebanon (Oosterbroek, 2015).

3.3. *Erioptera* (s. str.) *tenuirama* Savchenko, 1972 (Figures 4 and 27)

Material examined: 1 ♂. Kırklareli: *Demirköy*, Bıçkı stream (41°48'N, 27°48'E), 198 m, 12.v.2009, 1 ♂. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Slovakia, Russia, Georgia (Oosterbroek, 2015).

3.4. *Gnophomyia lugubris* (Zetterstedt, 1838) (Figures 5 and 28)

Material examined: 1 ♂. Bilecik: *Bozüyük*, Sarıdayı (39°55'N, 29°49'E), 880 m, 09.vii.2008, 1 ♂. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Belgium, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Lithuania, Macedonia, Norway, the Netherlands, Poland, Slovakia, Sweden, Switzerland, Ukraine, Russia (Oosterbroek, 2015).

3.5. *Gonomyia* (s. str.) *tenella* (Meigen, 1818) (Figures 6 and 29)

Material examined: 4 ♂♂, 1 ♀. Çanakkale: *Ayvacık*, Gülpınar, Tuzla (39°34'N, 26°10'E), 12 m, 10.iv.2010, 1 ♂, 1 ♀. *Ezine*, Kayhan (39°42'N, 26°09'E), 10 m, 10.iv.2010, 1 ♂. *Yenice*, Kaz Mountains, Kalkım (39°45'N, 27°12'E), 290 m, 03.ix.2010, 1 ♂. Edirne: *Keşan*, Suluca (40°41'N,

26°28'E), 160 m, 12.iv.2010, 1 ♂. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Ireland, Italy, Latvia, Lithuania, Macedonia, the Netherlands, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, Russia, Morocco, Algeria (Oosterbroek, 2015).

3.6. *Molophilus* (s. str.) *directidens* Stary, 1976 (Figures 7 and 30)

Material examined: 3 ♂♂, 1 ♀. Çanakkale: *Bayramiç*, Evciler, Kaz Mountains, 16 km (39°42'N, 26°48'E), 1185 m, 19.viii.2008, 3 ♂♂, 1 ♀. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Bulgaria (Oosterbroek, 2015).

3.7. *Molophilus* (s. str.) *lackschewitzianus* *lackschewitzianus* Alexander, 1953 (Figures 8 and 31)

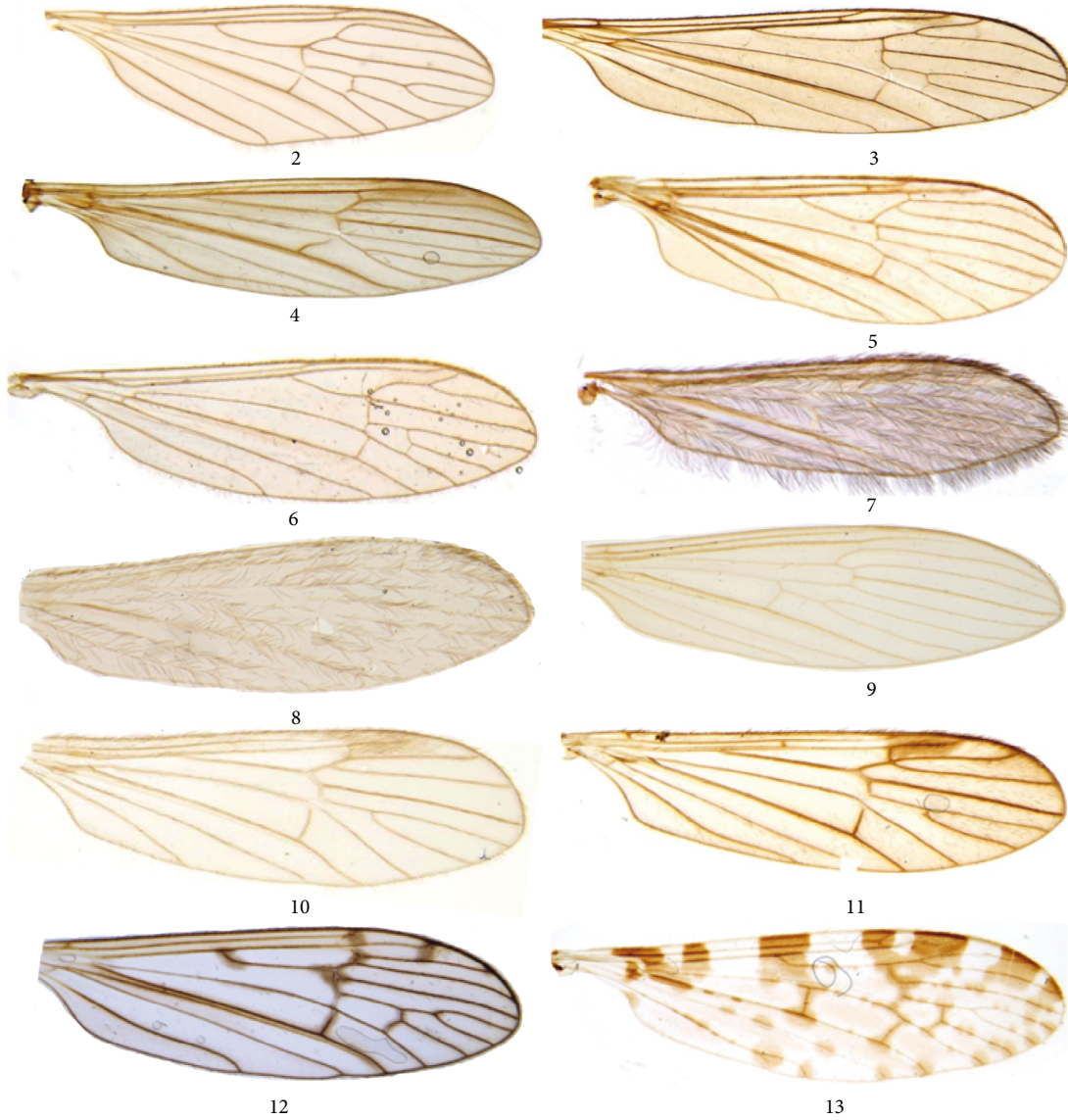
Material examined: 1 ♂. Kırklareli: *Demirköy* (41°51'N, 27°39'E), 470 m, 11.v.2009, 1 ♂. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Bulgaria, Denmark, Germany, Ireland, Italy, Montenegro, Poland, Slovakia, Slovenia, Switzerland, Ukraine, Russia (Oosterbroek, 2015).

3.8. *Molophilus* (s. str.) *serpentiger* Edwards, 1938 (Figures 9 and 32)

Material examined: 2 ♂♂, 1 ♀. Kırklareli: *Demirköy*, *Pınarhisar* (41°47'N, 27°43'E), 643 m, 11.v.2009, 1 ♂, 1 ♀; *Sarpdere* (41°52'N, 27°35'E), 370 m, 11.v.2009, 1 ♂. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Belgium, Czech Republic, Denmark, France, Germany, Great Britain, Hungary, Ireland, Italy, Lithuania, the Netherlands,



Figures 2–13. Diagnostic characters of the new records of Limoniidae. Wings: 2- *Crypteria* (s. str.) *limnophiloides* Bergroth, 1913; 3- *Ellipteroides* (*Protogonomyia*) *alboscuteclatus* (von Roser, 1840); 4- *Erioptera* (s. str.) *tenuirama* Savchenko, 1972; 5- *Gnophomyia lugubris* (Zetterstedt, 1838); 6- *Gonomyia* (s. str.) *tenella* (Meigen, 1818); 7- *Molophilus* (s. str.) *directidens* Stary, 1976; 8- *Molophilus* (s. str.) *lackschewitzianus lackschewitzianus* Alexander, 1953; 9- *Molophilus* (s. str.) *serpentiger* Edwards, 1938; 10- *Ormosia* (s. str.) *furcata* Savchenko, 1973; 11- *Rhypholophus varius* (Meigen, 1818); 12- *Dactylolabis* (s. str.) *sexmaculata* (Macquart, 1826); 13- *Eloeophila submarmorata* (Verrall, 1887).

Poland, Romania, Slovakia, Sweden, Switzerland, Ukraine (Oosterbroek, 2015).

3.9. *Ormosia* (s. str.) *furcata* Savchenko, 1973 (Figures 10 and 33)

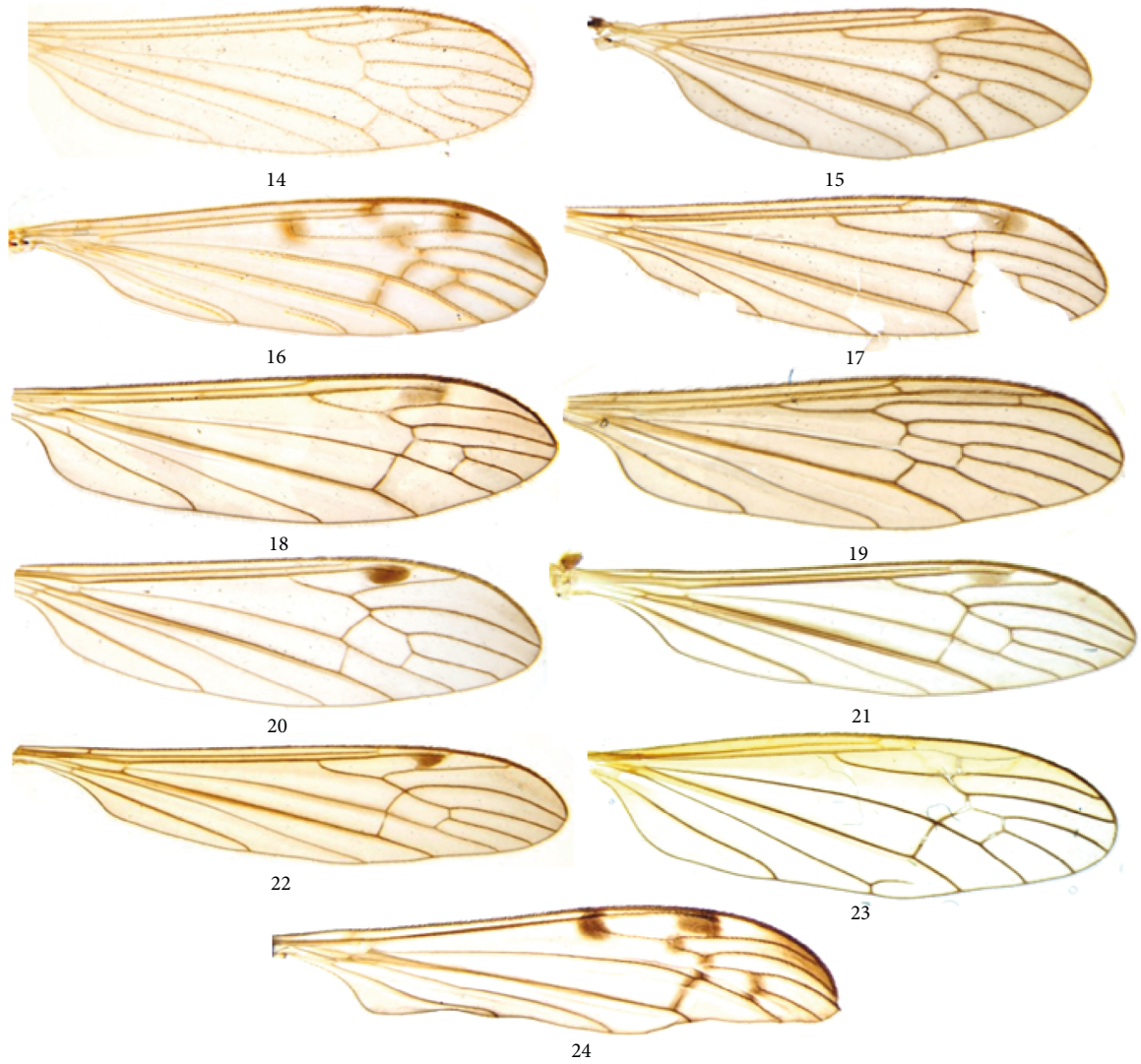
Material examined: 14 ♂♂, 1 ♀. Balıkesir: *Edremit*, Güre, Avcılar, Dedepınarı (39°35'N, 26°48'E), 260 m, 18.x.2008, 2 ♂♂. *Mustafakemalpaşa*, Muradiyesarnıç, Suuçtu waterfall (39°54'N, 28°23'E), 455 m, 24.viii.2008, 6 ♂♂, 1 ♀. Çanakkale: *Bayramiç*, Evciler, Kaz Mountains, Düden

Area (39°41'N, 26°47'E), 1265 m, 13.vii.2008, 4 ♂♂; Kaz Mountains (39°42'N, 26°47'E), 1170 m, 09.viii.2010, 1 ♂; (39°42'N, 26°48'E), 1185 m, 19.viii.2008, 1 ♂. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Russia (Oosterbroek, 2015).

3.10. *Rhypholophus varius* (Meigen, 1818) (Figures 11 and 34)

Material examined: 171 ♂♂, 14 ♀♀. Balıkesir: *Edremit*, Kaz Mountains (39°41'N, 27°10'E), 560 m, 25.x.2009, 1

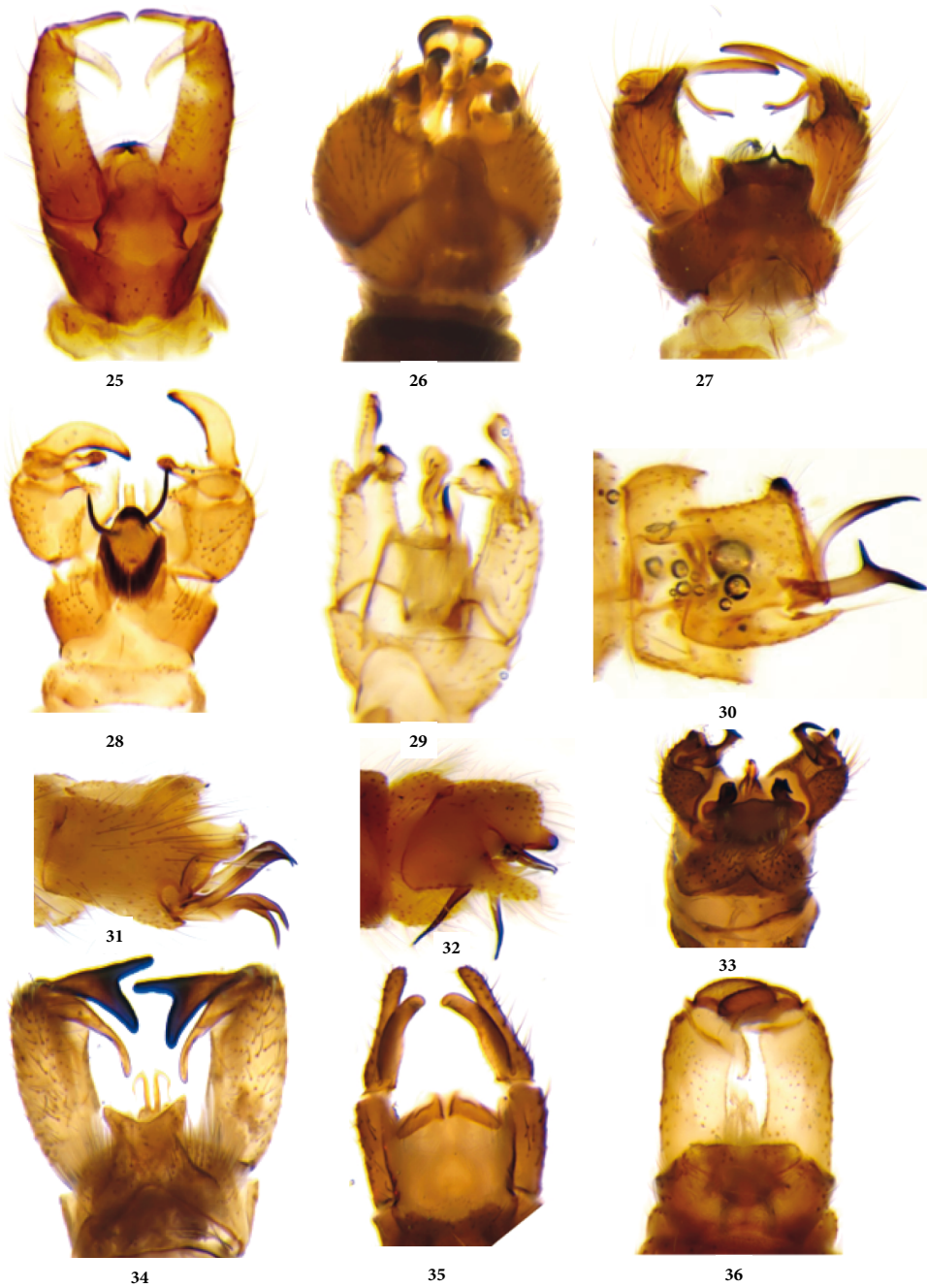


Figures 14–24. Diagnostic characters of the new records of Limoniidae. Wings: 14- *Euphyllidorea aperta* (Verrall, 1887); 15- *Prionolabis hospes* (Egger, 1863); 16- *Achyrolimonia decemmaculata* (Loew, 1873); 17- *Atypophthalmus* (s. str.) *inustus* (Meigen, 1818); 18- *Dicranomyia* (s. str.) *autumnalis* (Staeger, 1840); 19- *Dicranoptycha paralivescens* Stary, 1972; 20- *Heliuss* (s. str.) *flavus* (Walker, 1856); 21- *Heliuss* (s. str.) *longirostris longirostris* (Meigen, 1818); 22- *Heliuss* (s. str.) *pallirostris* Edwards, 1921; 23- *Limonia albifrons* (Meigen, 1818); 24- *Neolimonia dumetorum* (Meigen, 1804).

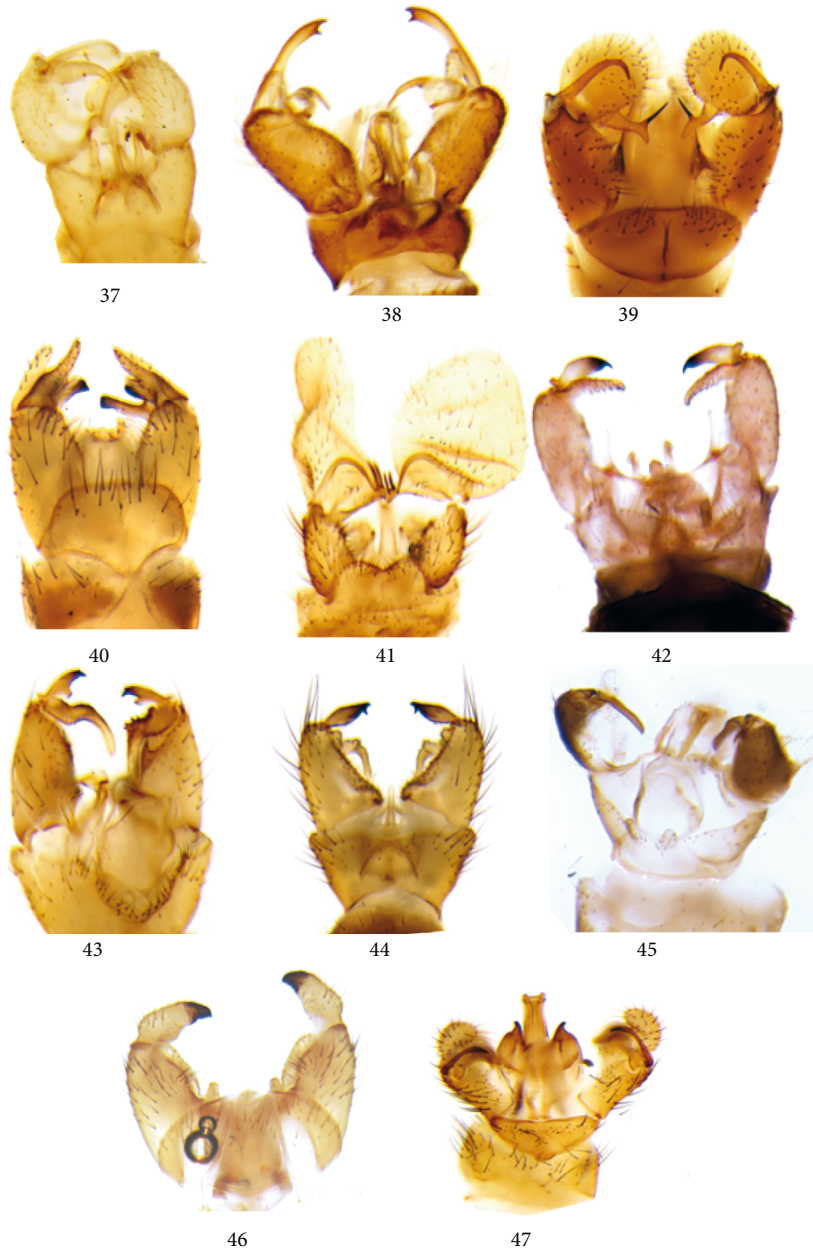
♂. Çanakkale: *Bayramiç*, Evciler, Ayazmana (39°44'N, 26°50'E), 430 m, 19.x.2008, 13 ♂♂, 1 ♀; Kaz Mountains, 16 km (39°42'N, 26°48'E), 1185 m, 19.viii.2008, 3 ♂♂, 2 ♀♀. *Yenice*, Kalkım, Kaz Mountains (39°41'N, 27°09'E), 625 m, 17.x.2008, 2 ♀♀; (39°42'N, 27°10'E), 630 m, 17.x.2008, 17 ♂♂, 1 ♀; (39°45'N, 27°13'E), 370 m, 25.x.2009, 1 ♂. Kırklareli: *Demirköy*, İğneada, Avcılar (41°53'N, 27°51'E), 185 m, 12.x.2008, 1 ♂; *Sislioba* (41°58'N, 27°55'E), 35 m, 12.x.2008, 8 ♂♂; 28.x.2009, 1 ♂; (41°58'N, 27°56'E), 115 m, 28.x.2009, 14 ♂♂; Longos forest (41°51'N, 27°56'E), 35 m, 13.x.2008, 1 ♂; *Biçki* stream (41°48'N, 27°48'E), 198 m, 13.x.2008, 29 ♂♂, 1 ♀; *Yıldız Mountains*, Longos Tree Nursery Garden (41°48'N, 27°56'E), 15 m, 13.x.2008, 1 ♂;

Bulanık stream (41°49'N, 27°57'E), 25 m, 28.x.2009, 1 ♂; *Dupnisa* Cave (41°50'N, 27°33'E), 350 m, 27.x.2009, 7 ♂♂, 1 ♀; 11.x.2008, 6 ♂♂, 1 ♀; *Pınarhisar* (41°46'N, 27°41'E), 618 m, 11.x.2008, 8 ♂♂, 1 ♀, *Yenice*, Manyetik Alan (41°44'N, 27°39'E), 565 m, 29.x.2009, 1 ♂; *Jandarma Tepe* (41°45'N, 27°41'E), 780 m, 11.x.2008, 6 ♂♂, 1 ♀; 565 m, 11.x.2008, 45 ♂♂, 2 ♀♀. *Kocaeli*: *İzmit*, Maşukiye, Kartepe (40°39'N, 30°07'E), 1184 m, 23.viii.2009, 1 ♂. *Sakarya*: *Geyve*, *Doğançay* (40°36'N, 30°19'E), 45 m, 25.x.2008, 3 ♂♂. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Ireland, Lithuania, the Netherlands,



Figures 25–36. Diagnostic characters of the new records of Limoniidae. Male terminalia: 25- *Crypteria* (s. str.) *limnophiloides* Bergroth, 1913; 26- *Ellipteroides* (*Protogonomyia*) *alboscutecllatus* (von Roser, 1840); 27- *Erioptera* (s. str.) *tenuirama* Savchenko, 1972; 28- *Gnophomyia lugubris* (Zetterstedt, 1838); 29- *Gonomyia* (s. str.) *tenella* (Meigen, 1818); 30- *Molophilus* (s. str.) *directidens* Stary, 1976; 31- *Molophilus* (s. str.) *lackschewitzianus lackschewitzianus* Alexander, 1953; 32- *Molophilus* (s. str.) *serpentiger* Edwards, 1938; 33- *Ormosia* (s. str.) *furcata* Savchenko, 1973; 34- *Rhypholophus varius* (Meigen, 1818); 35- *Dactylolabis* (s. str.) *sexmaculata* (Macquart, 1826); 36- *Eloeophila submarmorata* (Verrall, 1887).



Figures 37–47. Diagnostic characters of the new records of Limoniidae. Male terminalia: 37- *Euphyllidorea aperta* (Verrall, 1887); 38- *Prionolabis hospes* (Egger, 1863); 39- *Achyrolimonia decemmaculata* (Loew, 1873); 40- *Atypophthalmus* (s. str.) *inustus* (Meigen, 1818); 41- *Dicranomyia* (s. str.) *autumnalis* (Staeger, 1840); 42- *Dicranoptycha paralivescens* Stary, 1972; 43- *Helius* (s. str.) *flavus* (Walker, 1856); 44- *Helius* (s. str.) *longirostris longirostris* (Meigen, 1818); 45- *Helius* (s. str.) *pallirostris* Edwards, 1921; 46- *Limonia albifrons* (Meigen, 1818); 47- *Neolimonia dumetorum* (Meigen, 1804).

Norway, Poland, Romania, Sweden, Switzerland, Ukraine, Russia (Oosterbroek, 2015).

3.11. *Dactylolabis* (s. str.) *sexmaculata* (Macquart, 1826) (Figures 12 and 35)

Material examined: 26 ♂♂, 7 ♀♀. Kırklareli: Demirköy (41°51'N, 27°39'E), 470 m, 11.v.2009, 5 ♂♂, 2 ♀♀; Bıçkı stream (41°48'N, 27°48'E), 198 m, 12.v.2009, 7 ♂♂;

21.iv.2009, 2 ♂♂; Dupnisa Cave (41°50'N, 27°33'E), 350 m, 11.v.2009, 1 ♀; Sarpdere (41°51'N, 27°34'E), 370 m, 11.v.2009, 2 ♂♂, İğneada, Sislioba (41°57'N, 27°54'E), 32 m, 21.iv.2009, 1 ♂; Pınarhisar road 10 km (41°46'N, 27°41'E), 618 m, 11.v.2009, 4 ♂♂, 3 ♀♀. Pınarhisar, Yenice, Manyetik Alan (41°44'N, 27°39'E), 565 m, 12.v.2009, 1 ♂. Vize, Pabuç stream (41°41'N, 27°53'E), 152 m, 21.iv.2009, 4 ♂♂, 1 ♀. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Albania, Andorra, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, France, Germany, Great Britain, Ireland, Italy, Montenegro, Poland, Romania, Slovakia, Slovenia, Switzerland, Ukraine (Oosterbroek, 2015).

3.12. *Eloephila submarmorata* (Verrall, 1887) (Figures 13 and 36)

Material examined: 5 ♂♂, 4 ♀♀. Bilecik: *Bozüyük*, Kozpınar (39°54'N, 29°47'E), 540 m, 21.viii.2009, 1 ♂. Bursa: *İnegöl*, Eskikaracaköy, Mezit Stream (39°57'N, 29°40'E), 45 m, 24.vii.2009, 1 ♀. *Osmangazi*, Uludağ, Soğukpınar-Kestel road 5 km (40°01'N, 29°00'E), 810 m, 25.vii.2009, 1 ♂. Çanakkale: *Bayramiç*, Evciler, Kaz Mountains, 16 km (39°42'N, 26°48'E), 1185 m, 13.vii.2008, 1♂; Ayazmana (39°44'N, 26°50'E), 430 m, 17.vi.2009, 1 ♀; 26.vii.2009, 1 ♀. *Yenice*, Kaz Mountains, Kalkım (39°42'N, 27°10'E), 535 m, 08.viii.2010, 1 ♂. Kırklareli: *Demirköy*, İğneada, Sislioba (41°54'N, 27°57'E), 18 m, 20.vi.2009, 1 ♂. *Pınarhisar*, Yenice, Manyetik Alan (41°44'N, 27°39'E), 565 m, 19.vi.2009, 1 ♀. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Lithuania, the Netherlands, Poland, Romania, Slovakia, Slovenia, Sweden, Switzerland, Ukraine, Georgia, Iran (Oosterbroek, 2015).

3.13. *Euphyllidorea aperta* (Verrall, 1887) (Figures 14 and 37)

Material examined: 3 ♂♂, 1 ♀. Çanakkale: *Bayramiç*, Evciler, Kaz Mountains (39°42'N, 26°47'E), 880 m, 13.vii.2008, 1 ♂. Kırklareli: *Pınarhisar*, Yenice, Jandarma Tepe (41°45'N, 27°41'E), 780 m, 19.vi.2009, 1 ♂, 1 ♀. Tekirdağ: *Malkara*, Kınıklar, Narçeşmesi (40°55'N, 27°11'E), 152 m, 19.vi.2009, 1 ♂. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Belgium, Bulgaria, Czech Republic, Denmark, France, Germany, Ireland, Italy, the Netherlands, Poland, Romania, Slovakia, Slovenia, Switzerland, Ukraine (Oosterbroek, 2015).

3.14. *Prionolabis hospes* (Egger, 1863) (Figures 15 and 38)

Material examined: Bursa: 60 ♂♂. *Osmangazi*, Uludağ National Park (40°06'N, 29°05'E), 1530 m, 19.v.2009, 14 ♂♂. Edirne: *Merkez*, Musabeyli (41°42'N, 26°39'E), 145 m, 19.iv.2009, 1 ♂. Kırklareli: *Demirköy* (41°51'N, 27°39'E), 470 m, 11.v.2009, 1 ♂; *Bıçkı* stream (41°48'N, 27°48'E), 198 m, 21.iv.2009, 4 ♂♂; Dupnisa Cave (41°50'N, 27°33'E), 350 m, 20.iv.2009, 1 ♂; *Pınarhisar* (41°47'N, 27°43'E), 643 m, 11.v.2009, 2 ♂♂; (41°46'N, 27°41'E), 618 m, 11.v.2009, 5 ♂♂; *İğneada*, *Demirköy* (41°52'N, 27°49'E), 350 m, 21.iv.2009, 7 ♂♂; *Beğendik* (41°54'N, 28°00'E), 30 m, 21.iv.2009, 3 ♂♂; *Madara* bridge (41°52'N, 27°54'E), 23

m, 20.iv.2009, 2 ♂♂; *Sarpdere* (41°52'N, 27°35'E), 370 m, 20.iv.2009, 7 ♂♂; *Sislioba* (41°58'N, 27°55'E), 35 m, 21.iv.2009, 3 ♂♂; (41°57'N, 27°54'E), 32 m, 21.iv.2009, 1 ♂; *Sivriler* (41°46'N, 27°51'E), 255 m, 21.iv.2009, 6 ♂♂. *Pınarhisar*, Yenice, Jandarma Tepe (41°46'N, 27°41'E), 625 m, 20.iv.2009, 1 ♂; *Manyetik Alan* (41°44'N, 27°39'E), 565 m, 20.iv.2009, 1 ♂. *Kocaeli*: *İzmit*, Yuvacık, Aytepe (40°36'N, 29°56'E), 690 m, 19.v.2010, 1 ♂. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, France, Germany, Hungary, Italy, Luxembourg, Montenegro, Norway, Poland, Romania, Serbia, Slovakia, Slovenia, Spain, Switzerland, Ukraine (Oosterbroek, 2015).

3.15. *Achyrolimonia decemmaculata* (Loew, 1873) (Figures 16 and 39)

Material examined: 4 ♂♂. Bursa: *Mustafakemalpaşa*, Muradiyesarnıç, Suuçtu waterfall (39°54'N, 28°23'E), 455 m, 18.v.2009, 2 ♂♂. Çanakkale: *Bayramiç*, Evciler, Kaz Mountains, 18 km (39°42'N, 26°48'E), 1250 m, 13.vii.2008, 1 ♂. Kırklareli: *Demirköy*, İğneada, Sislioba (41°58'N, 27°55'E), 35 m, 28.x.2009, 1 ♂. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Belgium, Bulgaria, Croatia, Czech Republic, Finland, France, Germany, Great Britain, Hungary, Ireland, Italy, Lithuania, the Netherlands, Poland, Romania, Serbia, Slovakia, Slovenia, Sweden, Switzerland, Ukraine, Russia, Georgia, Armenia, Azerbaijan, Iran (Oosterbroek, 2015).

3.16. *Atypophthalmus* (s. str.) *inustus* (Meigen, 1818) (Figures 17 and 40)

Material examined: 1 ♂. Kırklareli: *Demirköy*, İğneada, Sislioba (41°54'N, 27°56'E), 20 m, 13.viii.2010, 1 ♂. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Italy, Latvia, Macedonia, Norway, Poland, Romania, Slovakia, Sweden, Switzerland, Ukraine, Russia, Georgia, Azerbaijan (Oosterbroek, 2015).

3.17. *Dicranomyia* (s. str.) *autumnalis* (Staeger, 1840) (Figures 18 and 41)

Material examined: 4 ♂♂, 2 ♀♀. Bursa: *Mustafakemalpaşa*, Muradiyesarnıç, Suuçtu waterfall (39°54'N, 28°23'E), 455 m, 18.v.2009, 4 ♂♂, 2 ♀♀. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Iceland, Ireland, Italy, Latvia, Lithuania, Macedonia, the Netherlands, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, Russia, India (Oosterbroek, 2015).

3.18. *Dicranoptycha paralivescens* Stary, 1972 (Figures 19 and 42)

Material examined: 3 ♂♂. Kırklareli: *Pınarhisar*, Yenice, Manyetik Alan (41°44'N, 27°39'E), 565 m, 15.vii.2008, 2 ♂♂. *Demirköy*, Velika-Dupnisa road 5 km (41°48'N, 27°41'E), 495 m, 29.vii.2009, 1 ♂. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Bulgaria, Czech Republic, Germany, Italy, Poland, Romania, Slovakia, Switzerland, Ukraine, Russia (Oosterbroek, 2015).

3.19. *Helius* (s. str.) *flavus* (Walker, 1856) (Figures 20 and 43)

Material examined: 3 ♂♂, 7 ♀♀. Balıkesir: *Erdek*, Çayağzı (40°29'N, 27°57'E), 23 m, 24.iv.2010, 1 ♂, 1 ♀. *Gönen*, Gündoğan (40°09'N, 27°38'E), 45 m, 25.iv.2010, 1 ♂, 3 ♀♀; Sarıköy (40°12'N, 27°36'E), 27 m, 25.iv.2010, 2 ♀♀. *Ivrindi*, Gökçeyazı (39°37'N, 27°36'E), 190 m, 27.iv.2010, 1 ♂. Çanakkale: *Lapseki*, Şahinli (40°18'N, 26°43'E), 66 m, 26.iv.2010, 1 ♀. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Ireland, Italy, Lithuania, Macedonia, the Netherlands, Poland, Romania, Serbia, Slovakia, Sweden, Switzerland, Ukraine, Russia (Oosterbroek, 2015).

3.20. *Helius* (s. str.) *longirostris longirostris* (Meigen, 1818) (Figures 21 and 44)

Material examined: 14 ♂♂, 10 ♀♀. Balıkesir: *Erdek*, Tatlısu (40°24'N, 27°56'E), 10 m, 24.iv.2010, 1 ♀. *Gönen*, Gündoğan (40°09'N, 27°38'E), 45 m, 25.iv.2010, 4 ♂♂, 1 ♀. Çanakkale: *Biga*, Çelikgürü (40°19'N, 27°02'E), 46 m, 25.iv.2010, 1 ♂, 2 ♀♀. *Çan*, Derenti (39°59'N, 27°04'E), 130 m, 26.iv.2010, 1 ♀. Edirne: *Havsa*, Hasköy (41°39'N, 26°53'E), 135 m, 19.iv.2009, 1 ♀. *Keşan*, Maltepe (40°39'N, 26°38'E), 85 m, 09.v.2009, 1 ♂, 2 ♀♀. *Süloğlu*, Sülecik (41°49'N, 26°50'E), 215 m, 10.v.2009, 1 ♂. Kırklareli: *Demirköy*, İğneada (41°52'N, 27°56'E), 10 m, 06.ix.2010, 3 ♂♂, 1 ♀. Kocaeli: *Kandıra*, Kurtyeri (41°08'N, 30°11'E), 10 m, 18.v.2010, 3 ♂♂. Sakarya: *Karasu*, Denizköy (41°07'N, 30°33'E), 60 m, 17.v.2010, 1 ♂. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Ireland, Italy, Latvia, Lithuania, the Netherlands, Poland, Romania, Slovakia, Sweden, Switzerland, Ukraine, Russia, Egypt, Israel (Oosterbroek, 2015).

3.21. *Helius* (s. str.) *pallirostris* Edwards, 1921 (Figures 22 and 45)

Material examined: 17 ♂♂, 28 ♀♀. Balıkesir: *Manyas*, Haydar (40°04'N, 28°00'E), 29 m, 03.vi.2009, 2 ♀♀. Edirne: *Keşan*, Suluca (40°41'N, 26°28'E), 160 m, 12.iv.2010, 1 ♂; Maltepe (40°39'N, 26°38'E), 85 m, 09.v.2009, 11 ♂♂, 11

♀♀; Karahisar (40°46'N, 26°30'E), 16 m, 12.iv.2009, 1 ♂. *Merkez*, Musabeyli (41°42'N, 26°39'E), 145 m, 19.iv.2009, 5 ♂♂, 7 ♀♀; Karaağaç (41°39'N, 26°32'E), 88 m, 10.v.2009, 6 ♀♀. Kırklareli: *Demirköy*, İğneada, Erikli lake (41°53'N, 27°59'E), 5 m, 12.v.2009, 1 ♀. *Pınarhisar*, Yenice, Jandarma Tepe (41°46'N, 27°41'E), 625 m, 20.iv.2009, 1 ♀. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Czech Republic, Denmark, Finland, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Lithuania, Latvia, Moldova, the Netherlands, Poland, Romania, Slovakia, Sweden, Switzerland, Ukraine, Russia, Tunisia, Israel, Iran, Turkmenistan, Tajikistan (Oosterbroek, 2015).

3.22. *Limonia albifrons* (Meigen, 1818) (Figures 23 and 46)

Material examined: 3 ♂♂, 1 ♀. Kırklareli: *Demirköy*, Velika bridge (41°47'N, 27°42'E), 520 m, 11.v.2009, 3 ♂♂, 1 ♀. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Croatia, Czech Republic, France, Germany, Hungary, Italy, Lithuania, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia, Switzerland, Ukraine (Oosterbroek, 2015).

3.23. *Neolimonia dumetorum* (Meigen, 1804) (Figures 24 and 47)

Material examined: 31 ♂♂, 10 ♀. Balıkesir: *Edremit*, Kaz Mountains, Çınarlıhan (39°41'N, 27°10'E), 650 m, 16.vi.2009, 1 ♂. Bursa: *Mustafakemalpaşa*, Muradiyesarnıç, Suuçtu waterfall (39°54'N, 28°23'E), 455 m, 18.v.2009, 1 ♂. *Osmangazi*, Süleymaniye (40°06'N, 29°05'E), 1560 m, 25.vi.2009, 1 ♂. Çanakkale: *Ayvacık*, Gülpınar Tuzla (39°34'N, 26°10'E), 12 m, 10.iv.2010, 1 ♂. İstanbul: *Şile*, Yaylalı (41°05'N, 29°40'E), 180 m, 18.v.2010, 2 ♂♂, 1 ♀; Yeniköy (41°07'N, 29°48'E), 120 m, 18.v.2010, 1 ♀. Kırklareli: *Demirköy* (41°47'N, 27°43'E), 645 m, 06.ix.2010, 3 ♂♂; (41°56'N, 27°56'E), 18 m, 12.v.2009, 1 ♂; İğneada, Sislioba (41°58'N, 27°56'E), 115 m, 13.viii.2010, 3 ♂♂, 1 ♀; (41°54'N, 27°57'E), 55 m, 20.vi.2009, 1 ♂; (41°57'N, 27°54'E), 35 m, 13.viii.2010, 3 ♂♂, 1 ♀; (41°58'N, 27°56'E), 115 m, 13.viii.2010, 2 ♂♂, 1 ♀; Dupnisa Cave (41°50'N, 27°33'E), 415 m, 05.ix.2010, 4 ♂♂, 1 ♀; Sarpdere (41°53'N, 27°34'E), 450 m, 05.ix.2010, 1 ♂; Gökyaka (41°52'N, 27°37'E), 325 m, 05.ix.2010, 1 ♂; Balaban (41°51'N, 27°39'E), 450 m, 05.ix.2010, 1 ♂; İğneada, Longos Forest (41°51'N, 27°56'E), 35 m, 13.x.2008, 1 ♀; Mert Lake (41°54'N, 27°58'E), 2 m, 28.x.2009, 1 ♂; Sislioba (41°58'N, 27°55'E), 45 m, 12.x.2008, 1 ♂; (41°57'N, 27°54'E), 35 m, 13.viii.2010, 2 ♂♂, 1 ♀; Yeşilce (41°52'N, 27°43'E), 510 m, 20.vi.2009, 1 ♂; Velika bridge (41°47'N, 27°42'E), 160 m, 14.viii.2010, 2 ♀♀. New record for Turkish Limoniidae fauna.

Palaearctic distribution: Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece,

Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Montenegro, the Netherlands, Norway, Poland, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, Russia, Georgia, Azerbaijan (Oosterbroek, 2015).

4. Discussion

Until now, four taxa were known in the Marmara region: *Eloepophila maculata* (Meigen, 1804) from Bursa, *Dicranomyia* (s. str.) *livornica* from Balıkesir, and *Euphyllidorea dispar* (Meigen, 1818) and *Dicranoptycha fuscescens* (Schummel, 1829) from İstanbul (Lackschewitz, 1940; Koç et al., 2005; Stary and Oosterbroek, 2008). Of these four taxa, *Dicranomyia* (s. str.) *livornica* was not encountered in this study.

This study contributes significantly to both Turkey's and the Marmara region's fauna; 23 taxa for the Limoniidae fauna of Turkey and 92 taxa for the fauna of the Marmara region have been added (Tables 1 and 2). Thus, the number of limoniid taxa that are known to be present in the research area and in Turkey has increased to 96 and 141, respectively. Because Turkey has a wide variety of geographical and climate conditions, there might be many more species that have yet to be found.

When the taxa numbers are compared by provinces, Kırklareli (57), Bursa (50), and Çanakkale (50) have higher taxa numbers. These provinces are close to Uludağ, the Yıldız Mountains, and the Kaz Mountains, which are centers of biological diversity. On the contrary, Yalova (2), Tekirdağ (15), and İstanbul (19) have lower taxa numbers.

Table 2. The distribution of the superfamily Tipuloidea that has been determined in the Marmara region according to provinces.

	Species and subspecies	Notes	Provinces
Chioneinae			
1.	<i>Cheilotrichia cinerascens</i> (Meigen, 1804)	a, W, NM	Ba, Bu, Ça, K1, Sa
2.	<i>Crypteria</i> (s. str.) <i>limnophiloides</i> Bergroth, 1913	e, W, NT, NM	K1
3.	<i>Ellipteroides</i> (<i>Protogonomyia</i>) <i>alboscuteclatus</i> (von Roser, 1840)	a, W, NT, NM	Bu, Ça
4.	<i>E. (P.) limbatus</i> (von Roser, 1840)	a, W, NM	Ba
5.	<i>Eriocnopa diuturna</i> (Walker, 1848)	e, W, NM	Ça, Ed, K1, Te
6.	<i>E. symplectoides</i> (Kuntze, 1914)	a, e, W, NM	Te
7.	<i>Erioptera</i> (s. str.) <i>fusculeta</i> Edwards, 1938	a, e, W, E, NM	Ba, Bi, Bu, Ça, Ed, İs, K1
8.	<i>E. (s. str.) lutea lutea</i> Meigen, 1804	a, e, W, E, NM	Ba, Bi, Bu, Ça, İs, K1, Sa
9.	<i>E. (s. str.) tenuirama</i> Savchenko, 1972	e, W, NT, NM	K1
10.	<i>E. (Mesocyphona) bivittata</i> (Loew, 1873)	a, W, E, NM	Ba
11.	<i>Gnophomyia lugubris</i> (Zetterstedt, 1838)	a, W, E, NT, NM	Bi
12.	<i>Gonomyia</i> (s. str.) <i>bifida</i> Tonnoir, 1920	a, W, NM	Ko, Sa
13.	<i>G. (s. str.) conoviensis</i> Barnes, 1924	a, e, W, E, NM	Ed
14.	<i>G. (s. str.) copulata</i> (Becker, 1908)	a, W, NM	Sa
15.	<i>G. (s. str.) recta</i> Tonnoir, 1920	a, W, NM	Bu
16.	<i>G. (s. str.) tenella</i> (Meigen, 1818)	a, e, W, NT, NM	Ça, Ed
17.	<i>Hablolabis</i> (<i>Parilisia</i>) <i>pontica</i> (Savchenko, 1984)	a, e, W, NM	Te
18.	<i>Idiocera</i> (<i>Idiocera</i>) <i>pulchripennis</i> (Loew, 1856)	a, e, W, E, NM	Ed
19.	<i>Ilisia maculata</i> (Meigen, 1804)	a, e, W	Ba, Bu, Ça, Ed, İs, K1, Ko, Sa, Te
20.	<i>Molophilus</i> (s. str.) <i>aduncus</i> Stary, 1978	a, W, E, NM	Bu, Ça
21.	<i>M. (s. str.) appendiculatus</i> (Staeger, 1840)	a, e, W, E, NM	Ça, K1
22.	<i>M. (s. str.) directidens</i> Stary, 1976	a, W, NT, NM	Ça
22.	<i>M. (s. str.) griseus</i> (Meigen, 1804)	a, e, W, NM	Ed
24.	<i>M. (s. str.) kallemuelleri</i> Mendl, 1984	a, W, NM	Bi, Bu, Ça
25.	<i>M. (s. str.) lackschewitzianus lackschewitzianus</i> Alexander, 1953	e, W, NT, NM	K1
26.	<i>M. (s. str.) obscurus</i> (Meigen, 1818)	a, W, NM	Ba, Bi, Bu, Ça, K1, Sa
27.	<i>M. (s. str.) ochraceus</i> (Meigen, 1818)	a, W, NM	Bu, Sa
28.	<i>M. (s. str.) pleuralis</i> de Meijere, 1920	a, e, W, E, NM	Bu, Ça, Ed, K1, Sa
29.	<i>M. (s. str.) propinquus propinquus</i> (Egger, 1863)	a, e, W, E, NM	Ba, Bi, Bu, Ça, Ed, K1, Ko, Sa, Te
30.	<i>M. (s. str.) serpentiger</i> Edwards, 1938	e, W, NT, NM	K1

Table 2. (Continued).

	Species and subspecies	Notes	Provinces
31.	<i>Ormosia</i> (s. str.) <i>furcata</i> Savchenko, 1973	a, W, NT, NM	Ba, Ça
32.	<i>O</i> (s. str.) <i>hederae</i> (Curtis, 1835)	a, e, W, E, NM	Bu, Ça, K1
33.	<i>Rhabtomastix</i> (s. str.) <i>filata</i> Sary, 2004	a, W, NM	Bu
34.	<i>Rhypholophus varius</i> (Meigen, 1818)	a, e, W, NT, NM	Ba, Ça, K1, Ko, Sa
35.	<i>Scleroprocta balcanica</i> Sary, 1976	a, e, W, NM	K1
36.	<i>Symplecta</i> (<i>Psiloconopa</i>) <i>stictica stictica</i> (Meigen, 1818)	a, e, W, E, NM	Bu, Ça, Ed, K1, Ko, Sa, Te
37.	<i>S.</i> (s. str.) <i>hybrida</i> (Meigen, 1804)	a, e, W, E, N, O, NM	Bu, Ça, K1, Te
38.	<i>S.</i> (<i>Trimicra</i>) <i>pilipes</i> (Fabricius, 1787)	a, e, W, E, N, O, Ne, Af, Av, NM	Ba, Bu, Ça, Ed, K1, Ko, Sa, Te
Dactylolabinae			
39.	<i>Dactylolabis</i> (s. str.) <i>jonica</i> Lackschewitz, 1940	a, e, W, NM	Bu, Ça, K1
40.	<i>Dactylolabis</i> (s. str.) <i>sexmaculata</i> (Macquart, 1826)	e, W, NT, NM	K1
Limnophilinae			
41.	<i>Austrolimnophila</i> (s. str.) <i>ochracea</i> (Meigen, 1804)	a, e, W, NM	Ba, Bu, Ça, İs, Sa
42.	<i>Dicranophragma</i> (<i>Brachylimnophila</i>) <i>adjuntum</i> (Walker, 1848)	a, e, W, NM	Ba, Ça, İs, K1, Sa
43.	<i>D.</i> (B.) <i>nemorale</i> (Meigen, 1818)	a, W, E, NM	Bu, Ko
44.	<i>Eloeophila maculata</i> (Meigen, 1804)	a, e, W, E, NM	Ba, Bu, İs, K1, Sa
45.	<i>E. miliaria</i> (Egger, 1863)	a, e, W, NM	Bu, Ça, K1
46.	<i>E.submarmorata</i> (Verral, 1887)	a, e, W, NT, NM	Bi, Bu, Ça, K1
47.	<i>Epiphragma</i> (s. str.) <i>ocellare</i> (Linnaeus, 1760)	a, e, W, E, N, NM	Bi, K1, Ko
48.	<i>Euphyllidorea aperta</i> (Verral, 1887)	a, e, W, NT, NM	Ça, K1, Te
49.	<i>Euphyllidorea dispar</i> (Meigen, 1818)	a, e, W	Bu
50.	<i>E. phaeostigma</i> (Schummel, 1829)	a, W, NM	Ba, Bu, Ça
51.	<i>Hexatoma</i> (<i>Cladolipes</i>) <i>simplex simplex</i> (Loew, 1865)	a, W, NM	Ba
52.	<i>H.</i> (<i>Eriocera</i>) <i>chirothecata</i> (Scopoli, 1763)	a, e, W, NM	Ba, Bi, Bu, Ça, K1, Sa
53.	<i>H.</i> (s. str.) <i>bicolor</i> (Meigen, 1818)	a, W, NM	Bu
54.	<i>H.</i> (s. str.) <i>fuscipennis</i> (Curtis, 1836)	a, e, W, NM	Ça
55.	<i>Limnophila</i> (s. str.) <i>schranksi</i> Oosterbroek, 1992	a, e, W, E, NM	Ed, K1
56.	<i>Paradelphomyia</i> (<i>Oxyrhiza</i>) <i>senilis</i> (Haliday, 1833)	a, e, W, E, NM	Ba, Bu, Ça, K1
57.	<i>Phyllodera ferruginea</i> (Meigen, 1818)	a, e, W, E, NM	Ba, Bu, Ça, İs, K1
58.	<i>Pilaria discicollis</i> (Meigen, 1818)	a, e, W, NM	Bi, Bu, Ça, İs, K1, Ko, Sa, Te
59.	<i>P. fuscipennis</i> (Meigen, 1818)	a, e, W, E, NM	Bu, K1
60.	<i>Prinolabis hospes</i> (Egger, 1863)	a, e, W, NT, NM	Bu, Ed, K1, Ko
61.	<i>Pseudolimnophila</i> (s. str.) <i>sepium</i> (Verrall, 1886)	a, e, W, E, NM	Ba, Bu, Ça, İs, K1, Ko, Sa
Limoniinae			
62.	<i>Achyrolimonia decemmaculata</i> (Loew, 1873)	a, e, W, NT, NM	Bu, Ça, K1
63.	<i>Antocha</i> (<i>Orimargula</i>) <i>alpigena</i> (Mik, 1883)	a, W, NM	Bu
64.	<i>A.</i> (s. str.) <i>vitripennis</i> (Meigen, 1830)	a, W, E, NM	Ba, Sa
65.	<i>Atypophthalmus inustus</i> (Meigen, 1818)	e, W, E, NT, NM	K1
66.	<i>Dicranomyia</i> (s. str.) <i>autumnalis</i> (Staeger, 1840)	a, W, E, O, NT, NM	Bu
67.	<i>D.</i> (s. str.) <i>chorea</i> (Meigen, 1818)	a, e, W, NM	Bu, Ça, Ed
68.	<i>D.</i> (s. str.) <i>goritiensis</i> (Mik, 1864)	a, W, NM	Ba, Bu
69.	<i>D.</i> (s. str.) <i>mitis</i> (Meigen, 1830)	a, e, W, E, NM	Ba, Bi, Bu, Ça, Ed, K1, Ko, Te
70.	<i>D.</i> (s. str.) <i>modesta</i> (Meigen, 1818)	a, e, W, E, N, NM	Bu, Ça, K1, Ko, Sa, Ya
71.	<i>D.</i> (s. str.) <i>ornata</i> (Meigen, 1818)	a, W, NM	Ko
72.	<i>D.</i> (s. str.) <i>signatella</i> Sary and Freidberg, 2007)	a, W, NM	Bi, İs, Ko
73.	<i>D.</i> (s. str.) <i>ventralis</i> (Schummel, 1829)	a, e, W, E, O, NM	Ba, K1
74.	<i>D.</i> (<i>Glochina</i>) <i>sericata</i> (Meigen, 1830)	a, e, W, NM	Bi, Ça, Ed, İs, K1, Sa, Te
75.	<i>D.</i> (<i>Melanolimonia</i>) <i>morio</i> (Fabricius, 1787)	a, W, E, NM	Ba, Ko

Table 2. (Continued).

	Species and subspecies	Notes	Provinces
76.	<i>D. (Numantia) fusca</i> (Meigen, 1804)	a, e, W, E, N, NM	Ba, Bu, Ça, İs, K1, Ko
77.	<i>Dicranoptycha fuscescens</i> (Schummel, 1829)	a, e, W, E	Ba, Bi, Bu, Ça, Ed, İs, K1, Ko, Sa, Te, Ya
78.	<i>D. paralivescens</i> Stary, 1972	e, W, NT, NM	K1
79.	<i>D. savtshenkoi</i> Mendl, 1976	a, W, NM	Ba
80.	<i>Geranomyia caloptera</i> Mik, 1867	a, W, NM	Ça
81.	<i>Helioides</i> (s. str.) <i>flavus</i> (Walker, 1856)	a, W, E, NT, NM	Ba, Ça
82.	<i>H.</i> (s. str.) <i>longirostris longirostris</i> (Meigen, 1818)	a, e, W, NT, NM	Ba, Ça, Ed, K1, Ko, Sa
83.	<i>H.</i> (s. str.) <i>pallirostris</i> Edwards, 1921	a, e, W, E, NT, NM	Ba, Ed, K1
84.	<i>Limonia albifrons</i> (Meigen, 1818)	e, W, NT, NM	K1
85.	<i>L. hercegovinae</i> (Strobl, 1898)	a, e, W, NM	Bi, Bu, İs, K1, Ko
86.	<i>L. macrostigma</i> (Schummel, 1829)	a, e, W, E, O, NM	Ba, Bi, Bu, Ça, Ed, K1, Ko
87.	<i>L. nubeculosa</i> Meigen, 1804	a, e, W, E, N, NM	Ba, Bi, Bu, Ça, İs, K1, Sa
88.	<i>L. nussbaumi</i> Stary and Freidberg, 2007	a, e, W, NM	Ba, Bi, Bu, Ça, Ed, K1, Te
89.	<i>L. pannonica</i> (Kowarz, 1868)	a, e, W, NM	Ba, Bu, Ça, Ed, K1, Ko, Te
90.	<i>L. phragmitidis</i> (Schränk, 1781)	a, e, W, E, NM	Ba, Bi, Bu, Ça, Ed, K1, Ko, Sa
91.	<i>Lipsothrix nobilis</i> Loew, 1873	a, e, W, NM	Ba, Bi, Bu, Ça, K1, Ko
92.	<i>Metalimnobia</i> (s. str.) <i>bifasciata</i> (Schränk, 1781)	a, e, W, E, O, NM	Ed, İs, K1
93.	<i>M.</i> (s. str.) <i>quadrifasciata</i> (Linnaeus, 1760)	a, e, W, E, NM	İs, K1, Ko
94.	<i>Neolimonia dumetorum</i> (Meigen, 1804)	a, e, W, NT, NM	Ba, Bu, Ça, İs, K1
95.	<i>Rhipidia</i> (s. str.) <i>unicerata uniseriata</i> Schiner, 1864	a, e, W, E, NM	İs, Ko

NM: New record for the Marmara region fauna, NT: new record for Turkish fauna, a: known from the Asiatic part of Turkey, e: known from the European part of Turkey, W: known from the West Palearctic, E: known from the East Palearctic. Provinces of Turkey in the study area: Edirne (Ed), Tekirdağ (Te), Kırklareli (K1), İstanbul (İs), İzmit (İz), Yalova (Ya), Sakarya (Sa), Bilecik (Bi), Bursa (Bu), Balıkesir (Ba), and Çanakkale (Ça).

The low diversity in these provinces is likely a result of urbanization and destruction of natural habitats for agriculture (Table 1).

Ormosia (s. str.) *furcata* Savchenko, 1973 described from the North Caucasus and *Molophilus* (s. str.) *directidens* Stary, 1976 described from Bulgaria were each recorded in Turkey for the first time and recorded worldwide for only the second time in this study. Although not determined in this study, the probability of the occurrence of these species in Turkey's European area is high. Additionally, the results of this study expand the southern Palearctic region border of *Limonia albifrons* (Meigen, 1818) into Turkey.

It was already known that the research area had a generally rich biological variety in regards to other studied

animal groups. Now Tipulidae has been added to these animal groups. Fifty-seven of the taxa that were detected in the research region are distributed in the West Palearctic and 38 of the taxa are found in both the East and West Palearctic (Table 1). No species distributed only in the East Palearctic was observed in this study. However, 11 taxa that were found in this study are also known from other zoogeographic regions (Table 2).

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