

# The hunter-flies of Armenia. III.

## New records of the genus *Limnophora* Robineau-Desvoidy, 1830, with the description of a new species

(Insecta: Diptera: Muscidae)

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**Abstract.** Five species of *Limnophora* Robineau-Desvoidy, 1830 have been recorded from Armenia, and in this paper we give further records of these species and record eight species as new to Armenia: *L. obsignata* (Rondani, 1866), *L. olympiae* Lyneborg, 1965, *L. pollinifrons* Stein, 1916, *L. pulchriceps* (Loew, 1860), *L. rufimana* (Strobl, 1893), *L. setinerva* Schnabl, 1911, *L. tigrina* (Am Stein, 1860) and *L. triangula* (Fallén, 1825). One new species, *Limnophora mediterranea* Pont sp. n., is described.

**Key words.** Diptera, Muscidae, Armenia, *Limnophora*, new records, new species.

### Introduction

This third contribution to the hunter-flies of Armenia deals with the genus *Limnophora* Robineau-Desvoidy, 1830, which includes over 30 species in the western Palaearctic region. Species of *Limnophora* are closely associated with unpolluted rivers and streams. Adults can be found resting on boulders and stones, and among the plants lining the margins of rivers. Several species are active predators of the adult and immature stages of blackflies (Simuliidae) (see WERNER & PONT 2006). Larvae are generally aquatic or subaquatic, and are predaceous on other small invertebrates that live in the water (ROZKOŠNÝ & GREGOR 2004), including blackfly larvae and pupae.

Five species are known from Armenia (PONT et al. 2005, 2011): *L. femoriseta* Pont, Vikhrev & Werner, 2011, *L. maculosa* (Meigen, 1826), *L. pandellei* Séguy, 1923, *L. patellifera* (Villeneuve, 1911), and *L. riparia* (Fallén, 1824). In this paper we record eight species as new to Armenia. We list new records based on our fieldwork in 2005, 2010 and 2011, and describe a new species, from Armenia, Turkey, Greece, Spain.

### Material

The Armenian material was collected in 2005 by ACP and DW, and in 2010 and 2011 by ACP. This material has been identified by ACP and is deposited mainly in the Natural History Museum, London (BMNH), with some duplicates in the Zoologisches Museum der Humboldt-Universität, Berlin (ZMHU) and the Oxford University Museum of Natural History, Oxford (OUMNH). Additional material from Spain, Greece and Turkey has been made available by Verner MICHELSEN and is deposited in the Natural History Museum of Denmark, University of Copenhagen (ZMUC).

## Results

Species of *Limmophora* can be recognized by absence of a prealar seta; presence of setulae on the prosternum; and the presence of setulae at the base of vein R<sub>4+5</sub> on both upper and lower wing surfaces. There are keys for the identification of the Palaearctic species by HENNING (1959) and to Central European species by GREGOR et al. (2002.). A second key to the Central European species, together with a review of the immature stages, was given by ROZKOŠNÝ & GREGOR (2004). The predaceous behaviour of the adult flies has been described by WERNER & PONT (2006).

### *Limmophora femoriseta* Pont, Vikhrev & Werner, 2011

Material: Further records since the original description (PONT et al. 2011): ARMENIA: *Syunik*: Shikahogh, 39°06'N 46°28'E, 930 m, 23.vii.2011, 1♂; River Vorovan, Vaghatin, 39°30'N 46°07'E, 1400 m, 25.vii.2011, 1♂.

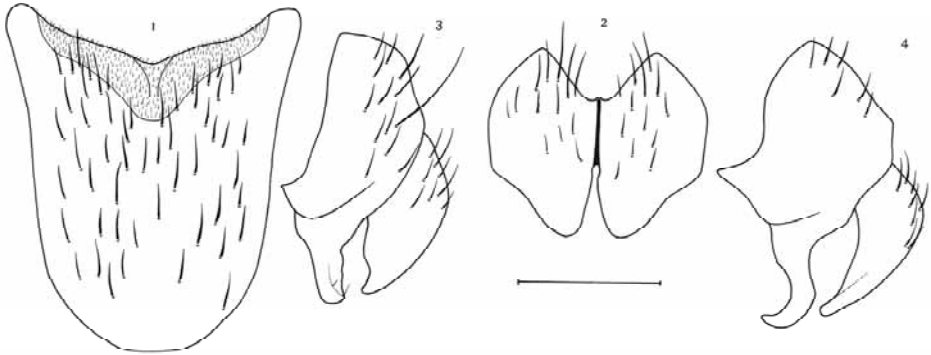
Distribution: Known only from Armenia and Turkey.

### *Limmophora mediterranea* Pont, sp. n. (Figs 1-3, 5-6)

Material: Holotype ♂, ARMENIA: *Vayots Dzor*: stream below Noravank church, 39°41'N 45°14'E, 1464 m, 15.vi.2010 (A. C. PONT) (BMNH). – Paratypes 19♂ 9♀, ARMENIA: *Aragatsotn*: River Amberd near Amberd fortress, 40°24'N 44°14'E, 2210 m, 25.vi.2010 (A. C. PONT), 1♂ (BMNH). *Kotayk*: c 40 km north of Yerevan, Aghveran, tributary of River Hrazdan, 3.vi.2003 (D. WERNER), 1♂ (ZMHU) (PONT et al. 2005: 80). *Syunik*: River Meghri, 39°00'N 46°12'E, 1240 m, 23.vii.2011 (A. C. PONT), 1♂ 2♀ (BMNH) & 1♀ (OUMNH); River Meghri, 39°02'N 46°12'E, 1450 m, 23.vii.2011 (A. C. PONT), 1♀ (BMNH). *Tavush*: Barrel Pass, 40°40'N 44°53'E, 1910 m, 13.vi.2010 (A. C. PONT), 1♂ 1♀ (BMNH). *Vayots Dzor*: River Arpa at Jermuk Town, 39°50'N 45°41'E, 1180 m, 11.vi.2005 (A. C. PONT), 1♂ (BMNH) (see Fig. 6); stream below Noravank church, 39°41'N 45°14'E, 1464 m, 15.vi.2010 (A. C. PONT), 4♂ 2♀ (3♂ 1♀ BMNH, 1♂ 1♀ OUMNH); the same, 24.vi.2010, 2♀ (BMNH). TURKEY: Nevşehir, Avanos-Ürgüp area, 1000 m, 4-6.v.1993 (V. MICHELSEN), 1♂ (ZMUC). GREECE: Ipiros, Tímfi Mts, 6-1000 m, 23.v.1994 (S. ANDERSEN), 1♂ (ZMUC); Makedhonia/Thessalia, Olympos, 700-2100 m, 21-26.v.1990 (Zool.Mus.Copenh.Exp.), 2♂ (ZMUC); Pelopónnisos, Taïyetos Mts, 950-1800 m, 15-19.v.1990 (Zool.Mus.Copenh.Exp.), 1♂ (ZMUC). SPAIN: Gerona, Caralps, 1200-1300 m, 13-17.vi.1982 (ANDERSEN, LYNEBORG, MICHELSEN), 1♂ (ZMUC); Gerona, Beget, 550-700 m, 19.vi.2007 (V. MICHELSEN), 1♂ (ZMUC); Lerida, Cambrils, Solsona, 9.vii.1997 (V. MICHELSEN), 1♂ (ZMUC); Malaga, 4 km W Sedella, 30.viii.1999 (V. MICHELSEN), 1♂ (ZMUC); Granada, 1 km S Pitres, 9-1000 m, 21-23.vii.2001 (V. MICHELSEN), 1♂ (ZMUC).

This is the species listed in PONT et al. (2005: 80) as “*Limmophora* sp. near *triangula* (Fallén, 1825)”. The collection of more material has enabled a full description of both sexes to be made.

**Description of male** (Fig. 5). *Head*: Ground-colour black. Eye bare. Frons broad, at middle 0.36 of head-width at this point, widening slightly in lower half. Ocellar seta strong, slightly longer than inner vertical; outer vertical hardly distinct from the adjacent post-ocular setulae. Fronto-orbital plate and parafacial silvery-white pruinose; face, gena and occiput light grey. Frontal triangle light grey dusted, viewed from in front and below reaching only halfway from anterior ocellus to lunule. Frontal vitta black, matt. At middle of frons, a fronto-orbital plate one-third width of frontal vitta. 3-5 pairs of inclinate frontal setae, with a row of short setulae outside them, and 2 pairs of orbital setae, lower one exclinate and upper one



Figs 1-4. *Limnophora mediterranea* Pont, sp. n. ♂ (paratype from Armenia, Kotayk, c 40 km north of Yerevan, Aghveran, tributary of River Hrazdan): 1, sternite 5; 2, cercal plate; 3, hypopygium, lateral view. – *Limnophora triangula* (Fallén) ♂ (from Germany, Westfalen, Rur-Eifel, Kaltal between Vossenack and Schmidt): 4, hypopygium, lateral view. Scale-bar 0.25 mm.

reclinate. Antenna black; postpedicel 2.3 times as long as wide and falling short of mouth-margin by half its own width. Arista short-pubescent, the longest individual hairs hardly as long as its basal width. Parafacial at middle half as wide as width of postpedicel, narrowing below, bare. In lateral view, mouth-margin below level of profrons. Depth below lowest eye-margin equal to width of postpedicel. Genal setae strong. Palpus black, slender. Prementum of proboscis glossy, black. – *Thorax* (Fig. 5). Ground-colour black. Scutum light grey dusted, with dark brown markings as follows: before suture with a narrow vitta running through acrostichal rows, and sometimes with a brown mark between dorsocentrals, intraalar and supraalar; behind suture with a pair of vittae between the dorsocentral and intraalar setae, reaching third dorsocentral, and a median vitta reaching to the prescutellar acrostichals, these three sometimes wholly or partially confluent just behind suture and forming a band that extends transversely between the intraalar rows. Pleura light grey dusted. Prothoracic spiracle dirty whitish. Scutellum light grey dusted and with a small dark spot around each subbasal lateral seta. Acrostichals 0+1, the presutural setulae biserial in front, becoming triserial just before suture. Dorsocentrals 2+3. Proepimeral seta with 2-3 additional short setulae. Katepisternals 1+2, the lower one shorter than the upper two. Proepisternal depression, notopleuron (except for setae) and meron bare. Scutellum uniformly but sparsely setulose on disc, with a pair of subbasal and apical setae; lateral margins and ventral surface bare. – *Legs*. Black. Fore femur with a complete row of uniform posteroventral setae. Fore tibia without submedian setae; apical posteroventral and ventral setae inconspicuous. Fore tarsus without modifications. Mid femur without anteroventral setae, with 1-2 short posteroventral setae in basal third, with several anterior setae in basal half; 0 anterior and 2 posterior pre-apical setae. Mid tibia with 2 posterior setae. Hind femur without ventral setae except 2-3 anteroventrals in apical quarter. Hind tibia with 1 anterodorsal and 1 anteroventral seta; 1 dorsal preapical, anterodorsal preapical absent. – *Wing*. Clear. Basicosta and tegula black. Costal spine inconspicuous. Veins bare except for costa and a few setulae on the node at the base of vein  $R_{4+5}$ . Cross-vein r-m below the point where vein  $R_1$  enters costa. Cross-vein dm-cu weakly sinuous. Veins  $R_{4+5}$  and  $M_1$  parallel at wing-margin. Calypters white, margins

creamy. Haltere yellow. – *Abdomen*. Ground-colour black. With light grey dust on tergites, including sides and ventral surface, sternites, pregenital tergites and epandrium, and with dark brown to black markings as follows: syntergite 1+2 unmarked or with a pair of oval spots; tergites 3 and 4 each with a pair of large, bold, well-defined, subquadrate spots, narrowly separated from fore- and hind-margins and broadly separated medially; tergite 5 with a weakly marked median vitta. Tergites without strong setae, with a few lateral marginals on tergite 4, and a few lateral discals and a marginal row on tergite 5. Sternite 1 bare. Sternite 5: Fig. 1. – *Terminalia*. Figs 2-3. – *Measurements*. Length of body, 4.0-4.25 mm. Length of wing, 3.5-3.75 mm.

**Description of female.** Differs from the male as follows: *Head*. Frons at level of anterior ocellus 0.42 of head-width at this point. Outer vertical twice as long as an adjacent post-ocular setula. Fronto-orbital plate tinged with brown along inner margin. Frontal triangle tinged with yellow, almost reaching lunule. At middle of frons a fronto-orbital plate 0.44 width of frontal vitta. Postpedicel 3 times as long as wide. – *Thorax*. Scutum with the dark markings much more distinct, especially before suture where the median vitta and the two lateral spots are large and conspicuous. – *Legs*. Fore tibia with the posteroventral apical seta distinct, as long as tibial width at this point. Mid femur without any setae on ventral surfaces. – *Abdomen*. Markings as in male, but syntergite 1+2 with or without spots, and the markings on tergites 3 and 4 much smaller and broadly separated from the fore-margin of the tergites. Tergite 5 without marginal setae. – *Ovipositor*. Not examined. – *Measurements*. Length of body, 3.75-4.5 mm. Length of wing 3.25-4.0 mm.

**Relationships.** This species belongs in the *triangula*-group of *Limnophora*, sometimes ranked as subgenus *Pseudolimnophora* Strobl, 1893, and is most similar to *Limnophora triangula* (Fallén, 1825) on account of the presence of 2 pairs of orbital setae, bare sternite 1, and 3 postsutural dorsocentral setae. The very similar European *Limnophora nigripes* (Robineau-Desvoidy, 1830) and *L. rotundata* Collin, 1930 have 4 postsutural dorsocentrals. It differs from *L. triangula* as follows:

- Mid tibia with 1 posterior seta. Presutural acrostichal setulae triserial, becoming quadriserial towards suture in ♀. Knob of haltere dull orange. ♂: head, when viewed from in front and below, with the brownish-grey frontal triangle reaching lunule; scutum before suture brown to brownish-grey, with a narrow yellowish-grey vitta along the dorsocentral rows and a grey band along suture from the dorsocentral line to the postpronotum, behind suture with a broad dark band along suture between the dorsocentral rows from which three broad vittae arise and run along the acrostichal and dorsocentral lines; sternite 5 as in Figs 7, 9; terminalia as in Figs 4, 8, 10. ♀: scutum yellowish-grey with a broad brown median vitta running through the acrostichals, a pair of postsutural vittae between the dorsocentral and intraalar rows, and a pair of presutural patches between the dorsocentrals, intraalars and supraalars ..... *triangula* (Fallén)
- Mid tibia with 2 posterior setae (very rarely 1 on one or both legs). Presutural acrostichal setulae biserial, becoming triserial towards suture in ♀. Knob of haltere light yellow. ♂: head, when viewed from in front and below, with the light grey frontal triangle reaching only halfway from anterior ocellus to lunule; scutum before suture light grey dusted, with a narrow dark median vitta running through the acrostichals, and sometimes with a pair of small spots between dorsocentrals, intraalar and supraalar, behind suture with three narrow vittae running along the acrostichal and dorsocentral lines, these sometimes



Fig. 5. *Limmophora mediterranea* Pont, sp. n., holotype ♂ (photo: K. CHILD).

partially or wholly confluent just behind suture and forming a band that extends transversely between the intraalar rows; sternite 5 as in Fig. 1; terminalia as in Figs 2–3. ♀: scutum light grey with three brown vittae running through the acrostichal and dorsocentral lines, the area between them sometimes partly to wholly darkened just behind suture ..... *mediterranea* Pont, sp. n.

**Etymology.** The species is named after the Mediterranean Sea to reflect the distribution of the species, and the name is an adjective in agreement with the feminine noun *Limmophora*.

**Distribution.** Armenia, Turkey, Greece, Spain.

***Limmophora obsignata* (Rondani, 1866)**

Material: ARMENIA: *Syunik*: River Kashtuni, Chaimazi, 39°20'N 46°28'E, 1120 m, 24.vii.2011, 1♂ 2♀.

Distribution: South Europe, North Africa, the Middle East, and widespread in the Afrotropical region. New for Armenia.



Fig. 6. *Limnophora mediterranea* Pont, sp. n., a typical habitat on gravel and pebbles by the River Arpa at Jermuk, Armenia, 39°50'N 45°41'E (photo: A. C. PONT).

### ***Limnophora olympiae* Lyneborg, 1965**

Material: ARMENIA: *Vayots Dzor*: stream below Noravank church, 39°41'N 45°14'E, 1480 m, 7.vi.2005, 1♂.

Distribution: Central and South Europe, Morocco, Israel. New for Armenia.

### ***Limnophora pandellei* Séguéy, 1923**

Material: ARMENIA: *Aragatsotn*: River Amberd near Amberd fortress, 40°24'N 44°14'E, 2210 m, 25.vi.2010, 1♂ 1♀. *Gegharkunik*: tributary of River Argichi at Nerkin Getashen, 40°09'N 45°16'E, 1940 m, 9.vi.2005, 1♀, Werner predation no. 2005/68 (Fig. 11). *Kotayk*: Azat River canyon, Garni N.P., 40°06'N 44°44'E, 1210 m, 4.vi.2005, 3♂ 1♀; Garni Canyon, 40°07'N 44°45'E, 1280 m, 14.vi.2010, 1♂; tributary of River Hrazdan at Bjni, 40°28'N 44°40'E, 1510 m, 17.vi.2010, 1♂. *Vayots Dzor*: stream below Noravank church, 39°41'N 45°14'E, 1460 m, 15 & 24.vi.2010, 2♂.

Distribution: Widespread in Europe, from Iceland to North Africa, and France to Turkey. Recorded from Armenia by PONT et al. (2005: 80).

Note: For an observation on predatory activity, see below under *Limnophora triangula* (Fallén, 1825).

***Limnophora patellifera* (Villeneuve, 1911)**

Material: ARMENIA: *Syunik*: River Meghri near Lehvaz, 38°57'N 46°12'E, 1300 m, 22.vii.2011, 1♀; Nerkin Hand, River Tsav, 39°03'N 46°31'E, 690 m, 23.vii.2011, 1♂; River Vorovan, Vaghatin, 39°30'N 46°07'E, 1400 m, 25.vii.2011, 4♂ 2♀.

Distribution: Known only from Armenia, Turkmenistan, Syria. Recorded from Armenia by PONT et al. (2011: 92).

Note: There may be 3 or 4 pairs of postsutural dorsocentral setae, even sometimes 3 on one side and 4 on the other.

***Limnophora pollinifrons* Stein, 1916**

Material: ARMENIA: *Armavir*: Aknashen, 40°06'N 44°17'E, 840 m, 20.vii.2011, 1♀. *Kotayk*: Azat River canyon, Garni N.P., 40°06'N 44°44'E, 1210 m, 4.vi.2005, 2♂; River Hrazdan north of Arzni, 40°19'N 44°35'E, 1270 m, 8.vi.2005, 1♂. *Syunik*: River Meghri at Lichk, 39°03'N 46°10'E, 1760 m, 23.vii.2011, 4♀.

Distribution: Widespread in Europe, Morocco, eastwards to Turkey and China. New for Armenia.

***Limnophora pulchriceps* (Loew, 1860)**

Material: ARMENIA: *Syunik*: Shikahogh, 39°06'N 46°28'E, 930 m, 23.vii.2011, 1♂.

Distribution: South and South-east Europe. New for Armenia. We have also seen a specimen from GEORGIA, Mamison Pass, 2500 m, 1.ix.1903, from BECKER's collection (no. 50577) (ZMHU). New for Georgia.

***Limnophora riparia* (Fallén, 1824)**

Material: ARMENIA: *Syunik*: River Meghri near Lehvaz, 38°57'N 46°12'E, 1300 m, 22.vii.2011, 1♀; Shikahogh, 39°06'N 46°28'E, 930 m, 23.vii.2011, 1♀; River Vorotan near Sisyan, 39°32'N 46°01'E, 1610 m, 26.vii.2011, 2♂. *Vayots Dzor*: Jermuk, 39°50'N 45°41'E, 1970 m, 27.vii.2011, 1♂. *Yerevan*: Yerevan city: River Hrazdan, 40°11'N 44°30'E, 960 m, 21.vii.2011, 1♂.

Distribution: Common in Europe and widespread throughout the Palaearctic region, as far east as Tajikistan and including North Africa. Recorded from Armenia by PONT et al. (2011: 91).

***Limnophora rufimana* (Strobl, 1893)**

Material: ARMENIA: *Aragatsotn*: River Kasakh at Ashtarak, 40°17'N 44°22'E, 1970 m, 12.vi.2005, 8♂ 1♀. *Gegharkunik*: River Gavaraget south of Noratus, 40°22'N 45°11'E, 1920 m, 24.vi.2010, 4♂ 9♀; River Tsakkar south of Noratus, 40°11'N 45°14'E, 1920 m, 24.vi.2010, 1♂. *Kotayk*: Azat River canyon, Garni N.P., 40°06'N 44°43'E, 1210 m, 4.vi.2005, 1♂. *Syunik*: River Kashtuni, Chaimazi, 39°20'N 46°28'E, 1120 m, 24.vii.2011, 1♀. *Vayots Dzor*: Herher Lake, by lake, 39°43'N 45°33'E, 1470 m, 15.vi.2010, 10♂ 8♀; Kechut, 39°48'N 45°40'E, 1960 m, 27.vii.2011, 1♀; Yehegis, tributary of River Arpa, 39°46'N 45°19'E, 1090 m, 28.vii.2011, 2♀.

Distribution: South Europe, North Africa, east to Afghanistan and China. New for Armenia.

***Limnophora setinerva* Schnabl, 1911**

Material: ARMENIA: *Syunik*: tributary of River Vorotan, near Karahunj, 39°28'N 46°21'E, 1440 m, 24.vii.2011, 1♂.

Distribution: South Europe and North Africa, east to Japan. New for Armenia

***Limnophora tigrina* (Am Stein, 1860)**

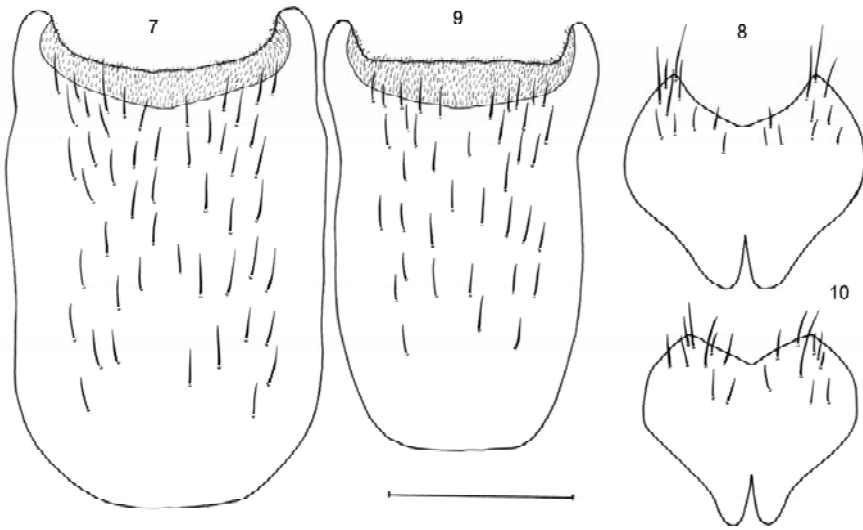
Material: ARMENIA: *Aragatsotn*: River Apnaget near Apnagyugh, 40°27'N 44°23'E, 1800 m, 18.vi.2010, 1♀; River Kasakh between Alagyaz and Aparan, 40°37'N 44°20'E, 1950 m, 18.vi.2010, 2♀. *Gegharkunik*: River Argichi at Nerkin Getashen, 40°09'N 45°16'E, 1940 m, 9.vi.2005, 5♀; tributary of River Argichi at Nerkin Getashen, 40°09'N 45°15'E, 1930 m, 9.vi.2005, 1♀; River Gavaraget south of Noratus, 40°22'N 45°11'E, 1920 m, 24.vi.2010, 7♂ 14♀; River Getik near Aghavnavank, 40°43'N 45°03'E, 990 m, 22.vi.2010, 1♀; north shore of Lake Sevan, Drakhtik, 40°33'N 45°13'E, 1920 m, 22.vi.2010, 1♀; River Tsakkar south of Noratus, 40°11'N 45°14'E, 1920 m, 24.vi.2010, 1♂. *Kotayk*: Azat River canyon, Garni N.P., 40°06'N 44°42'E, 1200 m, 4.vi.2005, 1♀. *Syunik*: River Kashtuni, Chaimazi, 39°20'N 46°28'E, 1120 m, 24.vii.2011, 9♀; River Meghri at Lichk, 39°03'N 46°10'E, 1760 m, 23.vii.2011, 2♀; Shikahogh, 39°06'N 46°28'E, 930 m, 23.vii.2011, 1♀; River Vorotan near Sisyan, 39°32'N 46°01'E, 1610 m, 26.vii.2011, 1♀. *Tavush*: Parz Lich, 40°45'N 44°58'E, 1870 m, 13.vi.2010, 1♂. *Vayots Dzor*: Herher Lake, by lake, 39°43'N 45°33'E, 1470 m, 15.vi.2010, 1♀; Herher Lake, by spring, 39°43'N 45°33'E, 1470 m, 15.vi.2010, 1♀; stream feeding Herher Reservoir, 39°43'N 45°33'E, 2070 m, 26.vii.2011, 1♀; Kechut, 39°48'N 45°40'E, 1960 m, 27.vii.2011, 1♀.

Distribution: Widespread throughout Europe, North Africa, east to China. New for Armenia.

***Limnophora triangula* (Fallén, 1825) (Figs 4, 7-10)**

Material: ARMENIA: *Aragatsotn*: River Amberd near Amberd fortress, 40°24'N 44°14'E, 2210 m, 25.vi.2010, 1♀; River Kasakh between Alagyaz and Aparan, 40°37'N 44°20'E, 1950 m, 18.vi.2010, 1♂; River Apnaget near Apnagyugh, 40°27'N 44°23'E, 1800 m, 18.vi.2010, 3♂ 1♀. *Gegharkunik*: River Argichi at Nerkin Getashen, 40°09'N 45°16'E, 1940 m, 9.vi.2005, 4♂ 4♀; tributary of River Argichi at Nerkin Getashen, 40°09'N 45°15'E, 1930 m, 9.vi.2005, 2♂ 1♀; tributary of River Argichi at Nerkin Getashen, 40°07'N 45°16'E, 1940 m, 9.vi.2005, 2♂, Werner predation nos. 2005/69 & 70. *Kotayk*: River Dalar at Aghveran, 40°29'N 44°36'E, 1630 m, 23.vi.2010, 2♂; River Hrazdan at Bjni, 40°28'N 44°39'E, 1470 m, 23.vi.2010, 1♀; River Hrazdan south of Nor Ajn, 40°19'N 44°35'E, 1270 m, 8.vi.2005, 1♂ 3♀. *Syunik*: Nerkin Hand, River Tsav, 39°03'N 46°31'E, 690 m, 23.vii.2011, 1♀; Shikahogh, 39°06'N 46°28'E, 930 m, 23.vii.2011, 1♂; tributary of River Vorotan, near Karahunj, 39°28'N 46°21'E, 1440 m, 24.vii.2011, 2♂; River Vorovan, Vaghatin, 39°30'N 46°07'E, 1400 m, 25.vii.2011, 3♂ 2♀. *Tavush*: Parz Lich, 40°45'N 44°58'E, 1870 m, 13.vi.2010, 1♂ 2♀. *Vayots Dzor*: River Arpa W of Vayk, 39°41'N 45°23'E, 1140 m, 27.vii.2011, 1♀.





Figs 7-10. *Limnophora triangula* (Fallén) ♂: 5, sternite 5, and 6, cercal plate (from Germany, Westfalen, Rur-Eifel, Kaltal between Vossenack and Schmidt); 7, sternite 5, and 8, cercal plate (from Georgia, Mamison Pass, leg. BECKER). Scale-bar 0.25 mm.

Distribution: Common and widespread in the Palaearctic region, as far east as China and Japan. New for Armenia. Also seen from GEORGIA, Mamison Pass, 2500 m, 1.ix.1903 (BECKER collection), 1♂ (ZMHU). New for Georgia.

Note: The identity of this species has been confirmed by dissection of the male terminalia, which are very different from those of *L. mediterranea* sp. n. (compare Figs 4, 7-10 with Figs 1-3).

Predatory activity: At the tributary of River Argichi at Nerkin Getashen, on 9 June 2005, we found that a large pipe running along the tributary had become exposed to the air as the water level had dropped over the preceding days. This pipe was carpeted with pupae of *Simulium variegatum* Meigen, 1818, which were being vigorously attacked and fed upon by species of *Limnophora* (Fig. 11). We observed *Limnophora pandellei* and *L. triangula* feeding on the pupae, and also found *L. tigrina* visiting the pipe.

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University of Copenhagen) for the loan of his material of the new species described here, Dr Joachim ZIEGLER (Zoologisches Museum der Humboldt-Universität, Berlin) for information from the BECKER collection notebooks, and Katherine CHILD (Oxford University Museum of Natural History) for the photograph of *Limnophora mediterranea* (Fig. 5).



Fig. 11. *Limnophora* sp., ♀, probably *L. pandellei* Séguéy, feeding on pupae of *Simulium variegatum* Meigen, on the pipe running along a tributary of the River Argichi at Nerkin Getashen, Armenia, 40°09'N, 45°16'E (photo: D. WERNER).

## References

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