

# The hunter-flies of Armenia.

## II. The genus *Lispe* Latreille, 1796

(Insecta: Diptera: Muscidae)

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**Abstract.** Four species of *Lispe* Latreille, 1796 are currently known from Armenia: *L. armeniaca* Canzoneri & Meneghini, 1972, *L. longicollis* Meigen, 1826, *L. nana* Macquart, 1835 and *L. tentaculata* (De Geer, 1776). In this paper we record *L. melaleuca* Loew, 1847, *L. pygmaea* Fallén, 1825 and *L. flavicineta* Loew, 1847 as new to Armenia, give a key to species, and list new records based on our fieldwork in 2005, 2010 and 2011.

**Key words.** Diptera, Muscidae, Armenia, *Lispe*, key, new records

### Introduction

This second contribution to the hunter-flies of Armenia deals with the genus *Lispe* Latreille, 1796, a genus of some 50 species in the Palaearctic region.

*Lispe* is one of the few genera of the Muscidae that can be easily recognised in the field. The adult flies are always found close to bodies of water, both flowing and standing, and are commonly to be seen resting on stones or running around on mud and sand, searching for mating partners or prey. They are aggressive predators of small insects and other soft-bodied invertebrates, but most especially of mosquitoes (Culicidae), and their predaceous behaviour has been reviewed by WERNER & PONT (2003, 2006).

Four species are known from Armenia. *Lispe armeniaca* Canzoneri & Meneghini, 1972 was described from Armenia, but has not been found since then. Three species, *L. longicollis* Meigen, 1826, *L. nana* Macquart, 1835 and *L. tentaculata* (De Geer, 1776) were recorded by PONT et al. (2005).

In this paper we record *Lispe melaleuca* Loew, 1847, *L. pygmaea* Fallén, 1825, and *L. flavicineta* Loew, 1847 as new to Armenia, give a key to species, and list new records based on our fieldwork in 2005, 2010 and 2011.

### Material

The material was collected in 2005 by ACP and DW, and in 2010 and 2011 by ACP; in 2010 DW also ran a Malaise trap in Yerevan city for two weeks (16-30 April). All material has been identified by ACP and is deposited mainly in the Natural History Museum, London, with some duplicates in the Zoologisches Museum der Humboldt-Universität, Berlin, and the Oxford University Museum of Natural History, Oxford.

## Results

Species of *Lispe* can be recognized by the presence of setulae on the anepimeron; enlarged, almost spoon-like palpi; parafacial setulose; posterior spiracle with setae on posterior margin; sternite 1 setulose. There are keys for the identification of the Palaearctic species by HENNIG (1960) 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).

### Key to Armenian species of *Lispe* Latreille, 1796

- 1 Vein M in apical part curved slightly forward towards vein R4+5. Mid tibia with a strong ventral seta. (Fore tibia with a submedian posterior seta. Mid tibia without an anterodorsal seta. Hind tibia with posterodorsal, anterodorsal and anteroventral setae)..... *longicollis* Meigen
  - Vein M running straight to the wing-margin, not curved forward towards vein R4+5 in its apical part. Mid tibia without a ventral seta ..... 2
- 2 Fore tibia with a submedian posterior seta. Mid tibia with an anterodorsal seta. Hind tibia with an anteroventral seta ..... 3
  - Fore tibia without a submedian posterior seta. Mid tibia without an anterodorsal seta (present in *flavicincta*). Hind tibia without an anteroventral seta ..... 4
- 3 Hind tibia without a posterodorsal seta. Dorsocentral setae 2+3, all setae strong. Scutellum with some fine hairs ventrally at tip ..... *melaleuca* Loew
  - Hind tibia with a posterodorsal seta. Dorsocentral setae 1+3, only the third postsutural pair strong. Scutellum bare ventrally at tip ..... *armeniaca* Canzoneri & Meneghini
- 4 Mid tibia with an anterodorsal seta. Abdomen light grey dusted, without any dark spots. ♂: tergite 5 golden dusted, contrasting with the preceding tergite; epandrium black, with a large median silvery spot ..... *flavicincta* Loew
  - Mid tibia without an anterodorsal seta. Abdomen grey to yellowish-grey dusted, with dark markings on at least tergites 3 and 4. ♂: tergite 5 and epandrium concolorous with tergite 4, and epandrium without a silvery spot ..... 5
- 5 Hind tibia with an anterodorsal apical seta alongside the dorsal apical. Mid femur with 2 posterior preapical setae. 3 strong katepisternal setae, the lower one equidistant from the upper two ..... *pygmaea* Fallén
  - Hind tibia without an anterodorsal apical seta. Mid femur with only 1 posterior preapical seta. Lower katepisternal seta weak, closer to posterior than to anterior seta ..... 6
- 6 Postpronotal lobe with strong spinules on anterior and lower parts. Meron bare above hind coxa. Scutellum bare ventrally at tip. ♂: abdominal tergite 3 with a small, rounded, black, scale-like process at each ventral hind-marginal corner; basal tarsomere of fore leg not modified in shape. ♀: scutum without a median pruinose patch ..... *nana* Macquart
  - Postpronotal lobe only with setulae. Meron setulose above hind coxa. Scutellum with some fine hairs ventrally at tip. ♂: abdominal tergite 3 without a ventral process at each ventral hind-marginal corner; fore leg with tarsomere 1 produced posteriorly into a long finger-like process. ♀: scutum with a curious median pruinose patch between 2nd and 3rd postsutural dorsocentral setae ..... *tentaculata* (De Geer)

## Material and distribution records

### *Lispe armeniaca* Canzoneri & Meneghini, 1972

Described from two localities in Armenia, 10 km east of Yerevan and the “Garni River”, which presumably refers to the Azat River in the Garni Gorge. Known only from Armenia, but not known to us.

### *Lispe flavicineta* Loew, 1847

Only known in Armenia from one male. Central and Southern Europe, as far east as Transcaucasia. New to Armenia. – *Vayots Dzor*: Jermuk, 39°50'N, 45°41'E, 1970 m, 27.vii.2011, 1 ♂.

### *Lispe longicollis* Meigen, 1826

A rare species in Armenia. On the road that runs along the west side of Herher Lake, there is a picnic area by a small spring. This species occurred around the spring and on the lake shore directly below this point. Previously recorded from Armenia (PONT et al. 2005). A widespread Palearctic species, Central and South Europe, reaching North Africa in the south and China in the east. – *Armavir*: Eraskhahun, 40°04'N, 44°13'E, 850 m, 20.vii.2011, 1 ♂. *Syunik*: River Meghri near Meghri, 38°53'N, 46°16'E, 540 m, 22.vii.2011, 1 ♂ 1 ♀. *Vayots Dzor*: Herher Lake, 39°43'N, 45°32'E, by lake, 1467 m, 15.vi.2010, 3 ♀; the same, by spring, 1 ♂, 1 ♀. *Yerevan*: Jrvezh, east of Yerevan City, 40°11'N, 44°36'E, 1391 m, 4.vi.2005, 1 ♀; Yerevan City, Malaise trap, 40°09'N, 44°30'E, 16-30.iv.2010, 1 ♀.

### *Lispe melaleuca* Loew, 1847

In Armenia, a rare species, of which we have seen only five Armenian specimens. A widespread Palearctic species, Central and South Europe, reaching North Africa in the south and China in the east. New to Armenia. – *Ararat*: Darbnik, south-west of Yerevan, 40°06'N, 44°22'E, 839 m, 10.vi.2005, 1 ♂. *Armavir*: Eraskhahun, 40°04'N, 44°13'E, 850 m, 20.vii.2011, 3 ♂. *Gegharkunik*: River Gavaraget south of Noratus, 40°21'N, 45°10'E, 1923 m, 24.vi.2010, 1 ♂.

### *Lispe nana* Macquart, 1835

After *Lispe tentaculata*, this is the most abundant and widespread species of the genus in Armenia. Previously recorded from Armenia (PONT et al. 2005). Widespread and rather common through most of the Palearctic region. – At Nerkin Getashen on the River Argichi, on 9 June 2005, a specimen of this species was observed hunting in the manner of *Lispe tentaculata*: it was running over the mud when it suddenly stopped, plunged its head down on to the mud, and pulled out a chironomid larva. Another specimen, a female (Werner no. 2005/57), encountered a small worm, *Eiseniella tetraedra* (Savigny, 1826), a typical peregrine worm that lives in springs, stream banks, lake margins, etc. The fly attacked the worm several times, biting and sucking at various points of the body whilst the worm thrashed around attempting to dislodge the attacker. – *Aragatsotn*: River Apnaget at Apnaguyugh Village, 40°26'N, 44°23'E, 1807 m, 12.vi.2005, 2 ♂, 2 ♀; River Kasakh at Alagyaz, 40°40'N, 44°17'E, 2060 m, 12.vi.2005, 1 ♂, 1 ♀. *Ararat*: Argavand, 8 km south-west of Yerevan, 40°09'N, 44°26'E, 800 m, 10.vi.2005, 1 ♂, 5 ♀; Darbnik, south-west of Yerevan, 40°06'N,

44°22'E, 839 m, 10.vi.2005, 1 ♀. *Gegharkunik*: River Argichi at Nerkin Getashen, 40°08'N, 45°16'E, 1938 m, 9.vi.2005, 8 ♂, 8 ♀ (including 1 ♀ with Werner no. 2005/57); Lake Sevan, near Lchashen, 40°31'N, 44°56', 1941 m, 6 and 9.vi.2005, 1 ♀; Lake Sevan, Noradus, 40°24'N, 45°11'E, 1949 m, 6.vi.2005, 1 ♂ 1 ♀; north shore of Lake Sevan, Drakhtik, 40°33'N, 45°13'E, 1925 m, 22.vi.2010, 1 ♂, 7 ♀; River Gavaraget south of Noratus, 40°22'N, 45°11'E, 1923 m, 24.vi.2010, 1 ♂, 1 ♀. *Kotayk*: Azat River canyon, Garni N.P., 40°06'N, 44°43'E, 1206 m, 4.vi.2005, 1 ♂; River Dalar south of Aghveran, 40°27'N, 44°37', 1476 m, 23.vi.2010, 2 ♀; River Hrazdan north of Arzni, 40°19'N, 44°35'E, 1269 m, 8.vi.2005, 2 ♀; River Hrazdan at Bjni, 40°28'N, 44°39'E, 1473 m; 23.vi.2010, 1 ♀; tributary of River Hrazdan at Bjni, 40°28'N, 44°40'E, 1508 m, 17.vi.2010, 2 ♂, 1 ♀. *Syunik*: River Kashtuni, Chaimazi, 39°20'N, 46°28'E, 1120 m, 24.vii.2011, 1 ♀; River Meghri at Lichk, 39°03'N, 46°10'E, 1760 m, 23.vii.2011, 1 ♂; River Vorotan near Sisyuan, 39°32'N, 46°01'E, 1610 m, 26.vii.2011, 1 ♀. *Vayots Dzor*: Herher Lake, by lake, 39°43'N, 45°33'E, 1467 m, 15.vi.2010, 8 ♂, 4 ♀; tributary of River Arpa 1 km north of Areni, 39°44'N, 45°11'E, 1115 m, 11.vi.2005, 4 ♂, 6 ♀; Kechut, 39°48'N, 45°40'E, 1960 m, 27.vii.2011, 1 ♀. *Yerevan*: Jrvezh, east of Yerevan City, 40°11'N, 44°36'E, 1391 m, 4.vi.2005, 1 ♀.

#### *Lispe pygmaea* Fallén, 1825

Another rare species in Armenia which we have found at only four localities, two of which are close to Lake Sevan. Widespread and common through most of the Palaearctic region. New to Armenia. – *Gegharkunik*: Lake Sevan, near Lchashen, 40°32'N, 44°56'E, 1941 m, 6 and 9.vi.2005, 1 ♂, 1 ♀; River Tsakkar south of Noratus, 40°11'N, 45°14'E, 1921 m, 24.vi.2010, 1 ♂. *Vayots Dzor*: Herher Lake, by spring, 39°43'N, 45°33'E, 1467 m, 15.vi.2010, 3 ♂, 1 ♀. *Yerevan*: Yerevan city, orchard opposite US Embassy, 40°10'N, 44°29'E, 950 m, 21.vii.2011, 1 ♀.

#### *Lispe tentaculata* (De Geer, 1776)

Common, and found at almost every aquatic site. It was even found at the most polluted river banks, where no species of *Limnophora* Robineau-Desvoidy, 1830 was found. Previously recorded from Armenia (PONT et al. 2005). The most widespread and abundant Palaearctic species, from the north of Russia to North Africa, and from Ireland to Japan. – At Kechut on 27.vii.2011, this species was observed hunting adult chironomid midges: one fly ran several centimetres across the water to feed on a dead midge floating on the water surface, whilst another caught and fed on a midge whilst hunting over streamside mud. At the River Apnaget at Apnaguygh Village on 12.vi.2005, this species was observed hunting over stones standing in the water, and was seen to take an adult chironomid midge as prey (Fig. 1). – *Aragatsotn*: River Amberd near Amberd fortress, 40°24'N, 44°14'E, 2213 m, 25.vi.2010, 1 ♂, 1 ♀; same locality, 40°24'N, 44°14'E, 2210 m, 19.vii.2011, 1 ♂, 4 ♀; River Amberd at Byurakan, 40°21'N, 44°16'E, 1565 m, 25.vi.2010, 1 ♀; River Apnaget near Apnaguygh, 40°27'N, 44°23'E, 1804 m, 18.vi.2010, 3 ♂, 2 ♀; River Apnaget at Apnaguygh Village, 40°26'N, 44°23'E, 1807 m, 12.vi.2005, 3 ♂, 3 ♀ (includes 1 ♀, Werner no. 2005/109); River Aragats at Aragats, 40°24'N, 44°14'E, 2210 m, 19.vii.2011, 1 ♂; River Kasakh at Alagyaz, 40°41'N, 44°17'E, 2060 m, 12.vi.2005, 2 ♂; River Kasakh between Alagyaz and Aparan, 40°37'N, 44°20'E, 1954 m, 18.vi.2010, 1 ♂, 2 ♀; Lake Kari, 40°28'N, 44°11'E, 3190 m, 19.vii.2011, 2 ♀. *Ararat*: Argavand, 8 km south-west of Yerevan, 40°09'N, 44°27'E, 800 m, 10.vi.2005, 1 ♂. *Armavir*: Eraskhahun, 40°04'N, 44°13', 850 m,



Fig.1. *Lispe tentaculata* (De Geer, 1776), feeding on an adult chironomid midge at the River Apnaget by Apnagyugh Village, 12 June 2005 (Photo: D. WERNER).

20.vii.2011, 1 ♂. *Gegharkunik*: north shore of Lake Sevan, Drakhtik, 40°33'N, 45°13', 1925 m, 22.vi.2010, 4 ♂, 2 ♀; River Getik between Getik and Ttujur, 40°40'N, 45°13', 1456 m, 22.vi.2010, 1 ♀; River Getik near Aghavnavank, 40°44'N, 45°03'E, 992 m, 22.vi.2010, 1 ♂, 3 ♀; River Tsakkar south of Noratus, 40°11'N, 45°14'E, 1921 m, 24.vi.2010, 3 ♂, 1 ♀. *Kotayk*: Azat River canyon, Garni N.P., 40°06'N, 44°43'E, 1206 m, 4.vi.2005, 7 ♂, 4 ♀; River Dalar at Aghveran, 40°29'N, 44°36'E, 1633 m, 23.vi.2010, 2 ♂, 2 ♀; the same, 40°30'N, 44°35', 1713 m, 23.vi.2010, 3 ♂; River Dalar south of Aghveran, 40°27'N, 44°37', 1476 m, 23.vi.2010, 5 ♀; Garni Canyon, 40°07'N, 44°44'E, 1277 m, 14.vi.2010, 1 ♂, 1 ♀; River Hrazdan north of Arzakan, 40°30'N, 44°34', 1881 m, 3.vi.2005, 1 ♀; River Hrazdan north of Arzni, 40°19'N, 44°35'E, 1269 m, 8.vi.2005, 5 ♀; tributary of River Hrazdan at Bjni, 40° 28'N, 44°40'E, 1508 m, 17.vi.2010, 5 ♂, 4 ♀; River Marmarik at Hankavan, 40°38'N, 44°31', 1917 m, 21.vi.2010, 1 ♂, 2 ♀; River Marmarik at Marmarik, 40°34'N, 44°41'E, 1745 m, 21.vi.2010, 3 ♀; Vayk, 30.v.2001 (P. H. ADLER), 1 ♀. *Syunik*: Brnakot, 39°28'N, 45°59'E, 1670 m, 26.vii.2011, 1 ♂; Geghi, 39°13'N, 46°09'E, 1540 m, 23.vii.2011, 1 ♂; River Kashtuni, Chaimazi, 39°20'N, 46°28'E, 1120 m, 24.vii.2011, 2 ♂, 1 ♀; River Meghri, 39°02'N, 46°12'E, 1450 m, 23.vii.2011, 1 ♂; River Meghri near Lehvaz, 38°57'N, 46°12'E, 1300 m, 22.vii.2011, 1 ♂; River Meghri at Lichk, 39°03'N, 46°10'E, 1760 m, 23.vii.2011, 2 ♂, 3 ♀; River Meghri in Meghri, 38°54'N, 46°15'E, 630 m, 22.vii.2011, 1 ♂; River Meghri near Meghri, 38°53'N, 46°16'E, 540 m, 22.vii.2011, 2 ♂, 1 ♀; River Meghri, 39°00'N, 46°12'E, 1240 m, 23.vii.2011, 2 ♂, 2 ♀; near Sarnakunk, 39°39'N, 45°53'E, 2090 m, 26.vii.2011, 2 ♀; Shikahogh, 39°06'N, 46°28'E, 930 m, 23.vii.2011, 1 ♂, 1 ♀; stream feeding Tolors Reservoir, 39°28'N, 46°01'E, 1660 m, 25.vii.2011, 1 ♂, 2 ♀; River Vorotan, Vorotan, 39°26'N, 46°22'E, 730 m, 24.vii.2011, 1 ♂; tributary of River Vorotan, near Karahunj, 39°28'N, 46°21'E, 1440 m, 24.vii.2011, 1 ♂; River Vorotan near Sisyan, 39°32'N, 46°01'E, 1610 m, 26.vii.2011, 2 ♀. *Tavush*: Parz Lich,

40°45'N, 44°58'E, 1867 m, 13.vi.2010, 1 ♂, 4 ♀. *Vayots Dzor*: tributary of River Arpa 1 km north of Areni, 39°44'N, 45°11'E, 1115 m, 11.vi.2005, 2 ♀; Herher Lake, by lake, 39°43'N, 45°33'E, 1467 m, 15.vi.2010, 4 ♂, 15 ♀; the same, by spring, 39°43'N, 45°33'E, 1467 m, 15.vi.2010, 3 ♂, 4 ♀; River Arpa at Jermuk Town, 39°50'N, 45°41'E, 1184 m, 11.vi.2005, 2 ♂; Jermuk, 39°50'N, 45°41'E, 1970 m, 27.vii.2011, 2 ♀; Kechut, 39°48'N, 45°40'E, 1960 m, 27.vii.2011, 1 ♂; stream below Noravank church, 39°41'N, 45°14'E, 1464 m, 15.vi.2010, 4 ♂, 4 ♀; the same, 24.vi.2010, 1 ♂, 4 ♀. *Yerevan*: Jrvezh, east of Yerevan City, 40°11'N, 44°36'E, 1391 m, 4.vi.2005, 4 ♂, 1 ♀; Yerevan City, Haghtanak Park, 40°10'N, 44°30'E, 1100 m, 2.vi.2005, 1 ♀; Yerevan city, River Hrazdan, 40°11'N, 44°30'E, 960 m, 21.vii.2011, 2 ♂, 1 ♀.

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