

# A preliminary list of the Fanniidae and Muscidae (Diptera) of Armenia

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**Abstract.** A preliminary list is given of the Fanniidae and Muscidae (Diptera) of Armenia. 3 species of Fanniidae and 58 species of Muscidae are listed, including two new species (*Coenosia wernerae* Pont n. sp. and *Coenosia brevicauda* Pont n. sp.). The three Fanniidae and 38 species of Muscidae are newly recorded from Armenia.

**Zusammenfassung.** Eine vorläufige Artenliste der Familien Fanniidae und Muscidae (Diptera) für Armenien wird gegeben. Sie umfasst 3 Arten innerhalb der Fanniidae und 58 Arten innerhalb der Muscidae und berücksichtigt zwei neu beschriebene Arten (*Coenosia wernerae* Pont n. sp. und *Coenosia brevicauda* Pont n. sp.). Die drei Arten der Fanniidae und 38 Arten der Muscidae gelten als Erstnachweise für Armenien.

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

## Introduction

Armenia is situated in the southern part of Transcaucasia, landlocked between the Black Sea and the Caspian Sea, and occupying the north-eastern part of the Armenian uplands and adjacent ranges of the Caucasus Minor. It is a mountainous country with an intricate combination of folded-block and volcanic mountains, alluvial plains, river valleys and lake pits. Its unique relief is the result of volcanic activity that has taken place during different geological periods since the Devonian. Strong clinker covers and well-preserved craters illustrate that the volcanic activity ceased here comparatively recently. The processes of volcanic and tectonic activity that took place in the Armenian upland have contributed a unique “geological” museum at its core, where all the rocks forming the crust of our planet can be found.

The intricate relief structure is characteristic of the entire territory within the modern limits of Armenia. Over 3000 kilometres of mountain ranges border its territory and occupy 47% of its land surface. In the north is the Somkhet range, in the north-east the Kechut range, further south the Bazum and Pamback ranges, and in the south-east the Zangezur range. Some 80% of Armenia is more than 1000 metres above sea-level. The highest peak is Mt Aragats, at 4095 metres above sea-level. To the north and north-west of Mt Aragats there are the clinker plateaux of Aparan and Shirak. In the east there is a high-mountain hollow now occupied by Lake Sevan. In the south of Armenia, along the bank of the River Araks, is the Ararat plain.

The climate of Armenia is continental, dry, with sharp fluctuations in daily temperatures. Its most characteristic feature is a strongly marked vertical zonality. Almost all the landscape zones that are typical for mountainous countries are found here, and the climate can change over very short distances.

Armenia is situated at the junction of two geobotanical provinces: Caucasian forest-

meadow, and Iranian desert and semi-desert. Forests of beech, oak and pine occupy 10% of the country, and are situated mainly in the north-east and south-east; they are situated mostly in the mountains, at altitudes between 550 and 2600 metres above sea-level. The upper parts of the mountain slopes are covered with subalpine meadows. The lower parts of the slopes and the volcanic plateaux are covered with steppe vegetation. In the Ararat plain there is wormwood-saline semi-desert and desert vegetation.

No species of Fanniidae and only 20 species of Muscidae have previously been recorded from Armenia (PONT 1986a, 1986b). This figure should be compared with the totals of 83 Fanniidae and 572 Muscidae known from Europe (PONT 2005). This report summarises briefly the published records and records some new ones, giving a total of 3 Fanniidae and 58 Muscidae. In view of the rich biodiversity of the Caucasus area, the true figures will probably be 3 or 4 times greater than these.

### Material and methods

This report is based on a collection made by D.W. in June 2003 whilst participating in a black fly (Diptera, Simuliidae) survey mainly of the Hrazdan River valley under the direction of E.A.K. (ISTC Project No. A-676). The samples were identified by A.C.P., who is also author of the two new species described here. Samples were collected at the following localities, which are all in the western and north-western areas of Armenia:

1. Kotayk region, c 40 km N of Yerevan, Aghveran, tributary of River Hrazdan, 3.vi.2003. – 2. Kotayk region, c 45 km N of Yerevan, Bjni, River Hrazdan, 3.vi.2003. – 3. Kotayk region, c 59 km N of Yerevan, Tsakhkadzor, tributary of River Tsakhkadzor, 3.vi.2003. – 4. Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003. – 5. Tavush region, c 60 km N of Yerevan, road to Dilijan, "Barrel" Pass, 5.vi.2003. – 6. Gegharkunik region, c 50 km N of Yerevan, Tsovagyukh, River Dzknaget, 5.vi.2003. – 7. Vayots Dzor region, Por village, tributary of River Arpa, 7.vi.2003. – 8. Vayots Dzor region, Por village, tributary of River Arpa, by stream, 7.vi.2003. – 9. Vayots Dzor region, Por village, tributary of River Arpa, swarming under tree, 7.vi.2003. – 10. Vayots Dzor region, Ger Ger village, River Ger Ger, 7.vi.2003. – 11. Vayots Dzor region, Ger Ger village, tributary of Ger Ger reservoir, 7.vi.2003.

Identifications were made using mainly the keys by HENNIG (1955-1964) and GREGOR et al. (2002). General comments on the distribution are based on the *Catalogue of Palaearctic Diptera* (PONT 1986a, 1986b) and on a later listing of the Fanniidae and Muscidae of Turkey and the Middle East (PONT 1991). Most of the records listed here from Georgia are also new, based on a collection made by A.C.P. in 1983.

The material is deposited mainly in the Natural History Museum, London, (BMNH), with duplicate specimens in the Museum für Naturkunde of the Humboldt-Universität zu Berlin, Berlin, (ZMHU), and in the Institute of Molecular Biology of the Armenian Academy of Sciences, Yerevan, (IMBY).

## Results and discussion

### Family FANNIIDAE

*Fannia canicularis* (Linnaeus, 1761)

Vayots Dzor region, Por village, tributary of River Arpa, swarming under tree, 7.vi.2003, 2 ♂. – *Distribution*: Cosmopolitan, including Turkey, Iran, Georgia and Azerbaijan. Known as the little or lesser housefly.

*Fannia lepida* (Wiedemann, 1817)

Kotayk region, c 45 km N of Yerevan, Bjni, River Hrazdan, 3.vi.2003, 1 ♀. – *Distribution*: Widespread in the Palaearctic and Nearctic regions, also Kashmir, but sparse in the Mediterranean and western Asia; Georgia.

*Fannia serena* (Fallén, 1825)

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 2 ♂; Tavush region, c 60 km N of Yerevan, road to Dilijan, “Barrel” Pass, 5.vi.2003, 1 ♂. – *Distribution*: Widespread in the Palaearctic and Nearctic regions, including Turkey and Georgia.

**Family MUSCIDAE****Subfamily Atherigoninae***Atherigona varia* (Meigen, 1826)

Recorded by PONT (1986b: 114), based on material seen from the Yerevan district in the Zoological Institute, Russian Academy of Sciences, St Petersburg: Erevan, botanicheskiy sad, 29.vii.1969 (V. RICHTER), 2 ♂, 1 ♀; Ush. r. Berdadzor, Erevan okr., 28.vii-11.viii.1969 (V. RICHTER), 4 ♂, 2 ♀. – *Distribution*: Widespread in the Palaearctic region, including Georgia, Azerbaijan, Turkey and Iran.

**Subfamily Azeliinae, tribe Reinwardtiini***Muscina stabulans* (Fallén, 1817)

Vayots Dzor region, Por village, tributary of River Arpa, by stream, 7.vi.2003, 4 ♂. – *Distribution*: Virtually cosmopolitan; also from “Transcaucasia” and Turkey.

**Subfamily Azeliinae, tribe Azeliini***Drymeia fasciculata* (Stein, 1916)

Kotayk region, c 40 km N of Yerevan, Aghveran, tributary of River Hrazdan, 3.vi.2003, 5 ♂ 3 ♀; Kotayk region, c 59 km N of Yerevan, Tsakhkadzor, tributary of River Tsakhkadzor, 3.vi.2003, 1 ♂; Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 13 ♂ 21 ♀; Gegharkunik region, c 50 km N of Yerevan, Tsovagyukh, River Dznaget, 5.vi.2003, 1 ♀; Tavush region, c 60 km N of Yerevan, road to Dilijan, “Barrel” Pass, 5.vi.2003, 2 ♂ 3 ♀. – *Distribution*: A montane species, recorded from France, ?Austria, Italy, Bulgaria, Turkey and Georgia.

*Hydrotaea albipuncta* (Zetterstedt, 1845)

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 1 ♀. – *Distribution*: Widespread in the Palaearctic region; also known from Georgia.

*Hydrotaea armipes* (Fallén, 1825) (*occulta* (Meigen, 1826))

Recorded by PONT (1986b: 75). – *Distribution*: A widespread Palaearctic and Nearctic species, also from Burma and Taiwan; known from Iran and Georgia.

*Hydrotaea cyrtoneurina* (Zetterstedt, 1845)

Vayots Dzor region, Por village, tributary of River Arpa, swarming under tree, 7.vi.2003, 1 ♂. –

*Distribution*: Widespread in the Palaearctic region; also known from Turkey.

*Hydrotaea dentipes* (Fabricius, 1805)

Kotayk region, c 40 km N of Yerevan, Aghveran, tributary of River Hrazdan, 3.vi.2003, 1 ♀. –

*Distribution*: A common Holarctic species, also in India, Nepal and China; known from Azerbaijan, Georgia and Turkey.

*Hydrotaea floccosa* Macquart, 1835 (*armipes* of authors)

Recorded from Yerevan (HENNIG, 1962: 711, as *armipes*); PONT (1986b: 78). – *Distribution*: A Holarctic species, also in Kashmir; known from Azerbaijan, Turkey and Iran.

*Hydrotaea hirticeps* (Fallén, 1824)

Recorded from Yerevan (HENNIG, 1962: 724); PONT (1986b: 78). – *Distribution*: A Mediterranean species.

*Hydrotaea ignava* (Harris, 1780)

Recorded by PONT (1986b: 79). – *Distribution*: A Holarctic species, also in Kashmir, Nepal, China and Malaysia; known from Azerbaijan, Georgia, Turkey and Iran.

*Hydrotaea irritans* (Fallén, 1823)

Recorded by PONT (1986b: 79). – *Distribution*: Widespread through the Palaearctic region, including Georgia; a common sweat fly.

*Hydrotaea meteorica* (Linnaeus, 1758)

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 1 ♀. –

*Distribution*: A Holarctic species, also in Pakistan; known from Turkey, Georgia and Iran.

*Potamia littoralis* Robineau-Desvoidy, 1830

Vayots Dzor region, Por village, tributary of River Arpa, under tree, 7.vi.2003, 1 ♀. – *Distribu-*

*tion*: A Holarctic species.

*Thricops nigrifrons* (Robineau-Desvoidy, 1830)

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 1 ♂. –

*Distribution*: Temperate Europe east to the Urals; also Georgia, Turkey and Iran.

### Subfamily Muscinae, tribe Muscini

*Dasyphora albofasciata* (Macquart, 1839) (*aeneomicans* Portschninsky, 1881)

Yerevan (HENNIG 1963: 949); Armenia (ZIMIN 1951: 188, as *saltuum* Rondani; PONT 1986b: 105). The type-locality of the synonym *D. aeneomicans* Portschninsky, 1881, is Yerevan. – *Distribution*: Western Palaearctic, including Georgia, Azerbaijan and Turkey.

*Dasyphora meridionalis* Zimin, 1951

A record of this species from Armenia is known to A.C.P., but the source is not known. – *Distribution*: Known otherwise only from Turkmenistan.

*Dasyphora paraversicolor* Zimin, 1951

Yerevan (HENNIG 1963: 955); PONT (1986b: 106). – *Distribution*: Only known from Middle and East Asia.

*Dasyphora penicillata* (Egger, 1865)

Recorded from Armenia by ZIMIN (1951: 197, as *versicolor* Meigen), HENNIG (1963: 957) and PONT (1986b: 106). – *Distribution*: An upland species of the Western Palaearctic; also from Turkey and Azerbaijan.

*Dasyphora pratorum* (Meigen, 1826)

Delishan (ZIMIN 1951: 203; HENNIG 1963: 959); PONT (1986b: 106). – *Distribution*: Western Palaearctic; also from Turkey, Georgia and Azerbaijan.

*Eudasyphora zimini* (Hennig, 1963)

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 1 ♀. – *Distribution*: A European upland species, also from Georgia.

*Morellia hortorum* (Fallén, 1817)

Vayots Dzor region, Por village, tributary of River Arpa, by stream, 7.vi.2003, 1 ♀. – *Distribution*: Widespread throughout the Palaearctic; also known from Turkey and Georgia.

*Musca autumnalis* De Geer, 1776

Armenia (STACKELBERG, 1926: 68, as *corvina*; this record may refer to *larvipara*). – *Distribution*: A Holarctic species, also in N India, Pakistan, China, and St Helena Island (introduced); known from Azerbaijan, Georgia and Turkey. Known as the face fly, a common pest of cattle and horses.

*Musca larvipara* Portschinsky, 1910

Vayots Dzor region, Por village, tributary of River Arpa, 7.vi.2003, 2♂; Vayots Dzor region, Por village, tributary of River Arpa, by stream, 7.vi.2003, 2 ♀. – *Distribution*: Through most of the southern areas of the Palaearctic; also known from Azerbaijan, Turkey and Iran.

*Musca osiris* Wiedemann, 1830 (*vitripennis* of authors)

Armenia (STACKELBERG, 1926: 68, as *vitripennis*). – *Distribution*: Western Palaearctic and Middle Asia, including Azerbaijan, Georgia, Turkey, Iran.

*Neomyia cornicina* (Fabricius, 1781) (*caesarion* (Meigen, 1826))

Yerevan, numerous (KARL 1935: 34, as *caesarion*; HENNIG 1963: 933, as *caesarion*); Armenia (STACKELBERG 1926: 68, as *caesarion*; PONT 1986b: 97). – *Distribution*: A Holarctic species, also in the northern Neotropical and northern Oriental regions, and Hawaii (introduced); known from Azerbaijan, Georgia, Turkey and Iran.

*Pyrellia vivida* Robineau-Desvoidy, 1830 (*cadaverina* of authors)

Yerevan (KARL 1935: 35, as *cadaverina*; HENNIG 1963: 941, as *cadaverina*); Armenia (PONT 1986b: 103). – *Distribution*: Throughout the Palaearctic region, also N India, Pakistan China; known from Azerbaijan, Turkey and Iran.

**Subfamily Muscinae, tribe Stomoxyini***Haematobosca atripalpis* (Bezzi, 1895)

Vayots Dzor region, Por village, tributary of River Arpa, by stream, 7.vi.2003, 3 ♂. – *Distribution*: In southern areas throughout the Palaearctic region, including Turkey. A biting fly, attacking mainly cattle and horses.

*Haematobosca stimulans* (Meigen, 1824)

Kotayk region, c 40 km N of Yerevan, Aghveran, tributary of River Hrazdan, 3.vi.2003, 1 ♀; Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 1 ♂ 2 ♀. – *Distribution*: Throughout the Palaearctic region, also N India and Nepal; known from Georgia and Turkey. A biting fly, but attacking mainly cattle and horses.

*Stomoxys calcitrans* (Linnaeus, 1758)

Armenia (STACKELBERG, 1926: 68). – *Distribution*: Cosmopolitan. Also recorded from Azerbaijan, Turkey and Iran. A biting fly, also known as the stable fly, and commonly biting humans.

**Subfamily Phaoniinae, tribe Phaoniini***Helina arctata* Collin, 1953

Vayots Dzor region, Ger Ger village, tributary of Ger Ger reservoir, 7.vi.2003, 3 ♂; Vayots Dzor region, Ger Ger village, River Ger Ger, 7.vi.2003, 2 ♂. – *Distribution*: A rare and little-known species, sparsely distributed throughout Europe east to Ukraine.

*Helina evecta* (Harris, 1780)

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 1 ♀; Tavush region, c 60 km N of Yerevan, road to Dilijan, “Barrel” Pass, 5.vi.2003, 1 ♀. – *Distribution*: A Holarctic species, also in India and Sri Lanka; known from Georgia.

*Helina latitarsis* Ringdahl, 1924

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 2 ♂; Tavush region, c 60 km N of Yerevan, road to Dilijan, “Barrel” Pass, 5.vi.2003, 1 ♀. – *Distribution*: Throughout Europe; also from Turkey.

*Helina maculipennis* (Zetterstedt, 1845)

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 1 ♂ 1 ♀; Tavush region, c 60 km N of Yerevan, road to Dilijan, “Barrel” Pass, 5.vi.2003, 1 ♀. – *Distribution*: A Holarctic species.

*Helina reversio* (Harris, 1780)

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 2 ♂ 1 ♀; Gegharkunik region, c 50 km N of Yerevan, Tsovagyukh, River Dzknaget, 5.vi.2003, 1 ♀; Tavush region, c 60 km N of Yerevan, road to Dilijan, “Barrel” Pass, 5.vi.2003, 1 ♀. – *Distribution*: A Holarctic species, including Azerbaijan and Turkey; eurytopic and very abundant;

*Helina tetrastigma* (Meigen, 1826)

Vayots Dzor region, Ger Ger village, River Ger Ger, 7.vi.2003, 1 ♂. – *Distribution*: Europe and Israel; also known from Turkey.

*Phaonia* sp. near *atriceps* (Loew, 1858)

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 1 ♂. This is an undescribed species, but the only available specimen (♂) is not fully hardened. It has a broad frons and 2 pairs of reclinate orbital setae; 3 postsutural dorsocentral setae; arista pubescent; knob of halteres black; vein R<sub>4+5</sub> bare on both wing surfaces; mid tibia with 2 posterior, 0 ventral, 0 anterodorsal setae; hind tibia with 2 anterodorsal and 4-5 short anteroventral setae; body and legs wholly black; eyes sparsely haired; meron bare.

*Phaonia kobica* Schnabl, 1911

Armenia (PONT 1986b: 124). Kotayk region, c 40 km N of Yerevan, Aghveran, tributary of River Hrazdan, 3.vi.2003, 5 ♂ 7 ♀; Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 1 ♀. – *Distribution*: Only known from Georgia, Armenia and Turkey.

*Phaonia serva* (Meigen, 1826)

Kotayk region, c 40 km N of Yerevan, Aghveran, tributary of River Hrazdan, 3.vi.2003, 1♂ 1 ♀. – *Distribution*: A Holarctic species.

**Subfamily Mydaeinae***Hebecnema fumosa* (Meigen, 1826)

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 1 ♀. – *Distribution*: Throughout the Palaearctic region, including Turkey.

*Hebecnema umbratica* (Meigen, 1826)

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 3 ♂ 2 ♀; Tavush region, c 60 km N of Yerevan, road to Dilijan, “Barrel” Pass, 5.vi.2003, 1 ♂ 2 ♀, ♂ identification queried; Kotayk region, c 40 km N of Yerevan, Aghveran, tributary of River Hrazdan, 3.vi.2003, 1 ♂. – *Distribution*: A Holarctic species, and also in India, Burma and China; also from “Transcaucasia” and Turkey.

*Hebecnema vespertina* (Fallén, 1823) (*affinis* Malloch, 1921)

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 4 ♂ 1 ♀; Tavush region, c 60 km N of Yerevan, road to Dilijan, “Barrel” Pass, 5.vi.2003, 1 ♂. – *Distribution*: A Holarctic species.

*Mydaea urbana* (Meigen, 1826)

Kotayk region, c 40 km N of Yerevan, Aghveran, tributary of River Hrazdan, 3.vi.2003, 1 ♂. – *Distribution*: A Holarctic species; also known from Azerbaijan, Georgia and Turkey.

*Myospila bimaculata* (Macquart, 1834)

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 1 ♀. – *Distribution*: Europe and Middle Asia.

*Myospila meditabunda* (Fabricius, 1781)

Yerevan (KARL 1935: 42; HENNIG 1956: 116; GREGOR 1968: 301); Armenia (PONT 1986b: 159). Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 2 ♂ 1 ♀; Tavush region, c 60 km N of Yerevan, road to Dilijan, “Barrel” Pass, 5.vi.2003, 1 ♀. – *Distribution*: A Holarctic species, also in northern South America; known from Azerbaijan, Iran, Georgia and Turkey.

### Subfamily Coenosiinae, tribe Limmophorini

#### *Limmophora maculosa* (Meigen, 1826)

Kotayk region, c 40 km N of Yerevan, Aghveran, tributary of River Hrazdan, 3.vi.2003, 1 ♀. – *Distribution*: Europe; also known from “Transcaucasia” and Tajikistan.

#### *Limmophora pandellei* Séguy, 1923

Kotayk region, c 40 km N of Yerevan, Aghveran, tributary of River Hrazdan, 3.vi.2003, 1 ♀; Kotayk region, c 45 km N of Yerevan, Bjni, River Hrazdan, 3.vi.2003, 1 ♂. – *Distribution*: Europe; also known from “Transcaucasia”, Georgia and Turkey.

#### *Limmophora* sp. near *latevittata* Schnabl, 1911

Vayots Dzor region, Por village, tributary of River Arpa, by stream, 7.vi.2003, 4 ♂. – This is probably an undescribed species, but more material is needed of this species and of the next one as it seems that there are several species of *Limmophora* in the Caucasus area that are close to but not identical with described European species. *L. latevittata* has been recorded from “Transcaucasia”, with a query (PONT 1986b: 183).

#### *Limmophora* sp. near *triangula* (Fallén, 1825)

Kotayk region, c 40 km N of Yerevan, Aghveran, tributary of River Hrazdan, 3.vi.2003, 1 ♂. – See the comments under the previous species. *L. triangula* has been recorded from “Transcaucasia” (PONT 1986b: 183).

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

The type-locality, 10 km east of Yerevan (CANZONERI & MENEGHINI 1972: 213); Armenia (PONT 1986b: 184). – *Distribution*: Known only from Armenia.

#### *Lispe longicollis* Meigen, 1826

Vayots Dzor region, Por village, tributary of River Arpa, by stream, 7.vi.2003, 1 ♂. – *Distribution*: Sparsely through warmer areas of the Palaearctic region, also Kashmir; recorded from “Transcaucasia” and Turkey.

#### *Lispe nana* Macquart, 1835

Garni (CANZONERI & MENEGHINI, 1966: 147); 10 km east of Yerevan (CANZONERI & MENEGHINI 1972: 214); Armenia (PONT 1986b: 188). – *Distribution*: Temperate and warm areas of the Palaearctic region, N India, and parts of the Afrotropical region; also known from Turkey and Iran.

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

Dievedi and Garni (CANZONERI & MENEGHINI 1966: 114); Armenia (PONT 1986b: 190). Kotayk region, c 45 km N of Yerevan, Bjni, River Hrazdan, 3.vi.2003, 2 ♂ 1 ♀; Vayots Dzor region, Por village, tributary of River Arpa, by stream, 7.vi.2003, 4 ♂ 4 ♀. – *Distribution*: Throughout the Palaearctic region, and also the Nearctic, northern Neotropical and Kashmir; known from Turkey and Iran.

### Subfamily Coenosiinae, tribe Coenosiini

#### *Lispocephala spuria* (Zetterstedt, 1838)

Kotayk region, c 40 km N of Yerevan, Aghveran, tributary of River Hrazdan, 3.vi.2003, 1 ♂. – *Distribution*: A rare Palaearctic species, in temperate zones from Great Britain to Japan; Nearctic (New Hampshire).

*Schoenomyza litorella* (Fallén, 1823)

Vayots Dzor region, Por village, tributary of River Arpa, by stream, 7.vi.2003, 2 ♀. – *Distribution*: A Holarctic species, also in Nepal, Pakistan and cool parts of the Afrotropical region; also known from “Transcaucasia”, Georgia and Turkey.

*Macrorchis meditata* (Fallén, 1825)

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 1 ♂ 1 ♀; Gegharkunik region, c 50 km N of Yerevan, Tsovagyukh, River Dzknaget, 5.vi.2003, 1 ♂. – *Distribution*: A Palaearctic species, also known from Turkey and Georgia.

*Coenosia agromyzina* (Fallén, 1825)

Tavush region, c 60 km N of Yerevan, road to Dilijan, “Barrel” Pass, 5.vi.2003, 1 ♂. – *Distribution*: A European species, also recorded from “Transcaucasia” and Turkey.

*Coenosia nigridigita* Rondani, 1866

Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003, 6 ♂ 10 ♀; Tavush region, c 60 km N of Yerevan, road to Dilijan, “Barrel” Pass, 5.vi.2003, 6 ♀. In these ♀ the frons is wholly dark, and mid femur has 2 posterior preapical setae. – *Distribution*: In the temperate and warm zones of Europe; also known from Turkey.

*Coenosia testacea* (Robineau-Desvoidy, 1830)

Gegharkunik region, c 50 km N of Yerevan, Tsovagyukh, River Dzknaget, 5.vi.2003, 5 ♀. In these ♀ the frons is yellow in front, and mid femur has 1 posterior preapical seta (usually); one of these ♀ is doubtful as it has the frons wholly dark. – *Distribution*: Throughout most of the Palaearctic region, including “Transcaucasia” and Turkey.

*Coenosia tigrina* (Fabricius, 1775)

Vayots Dzor region, Ger Ger village, River Ger Ger, 7.vi.2003, 7 ♂ 3 ♀. – *Distribution*: A Holarctic species, also recorded from “Transcaucasia”, Turkey and Iran.

*Coenosia wernerae* Pont, n. sp. (Figs. 1-3)

**Holotype.** ♂, Tavush region, c 60 km N of Yerevan, road to Dilijan, “Barrel” Pass, 5.vi.2003 (D. WERNER), in BMNH.

**Paratypes.** 2 ♀, data as for holotype, in BMNH; 2 ♂ 12 ♀, Tavush region, c 58 km N of Yerevan, Dilijan, beginning of Semyonovsky Pass, 5.vi.2003 (D. WERNER), in BMNH (4 ♀), ZMHU (1 ♂ 4 ♀) and IMBY (1 ♂ 4 ♀).

All three ♂ are not fully hardened, and so the measurements and some colours, especially on the head, will need revision when more material becomes available.

**Etymology.** Named after the collector of the type series, Doreen WERNER of the Humboldt-Universität zu Berlin.

**Diagnosis.** This is in the small group of species with a posterodorsal seta on hind tibia. It also has lower calypter well developed and projecting, some spinulose setulae on anterior margin of postpronotal lobes (especially distinct in ♂), femora and tibiae wholly black, mid femur with 0 anterior and 2 posterior preapical setae.

**Description.** ♂♀. *Head.* Ground-colour black. Eyes bare. Frons broad, at lunula 0.24 (♂) or 0.36 (♀) of greatest head-width (but not fully expanded in ♂). Fronto-orbital plate whitish

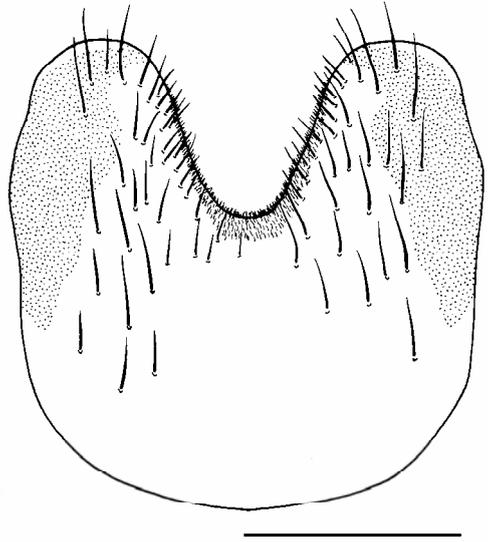


Fig. 1. *Coenosia wernerae* n. sp. (paratype).  
♂ sternite 5. Scale: 0.5 mm.

pruinose, more grey above and, in ♀, brownish along inner margin; parafacial and gena silvery; occiput light grey. Frontal plate matt; frontal triangle short, indistinct, reaching only halfway to lunula. Fronto-orbital plate very narrow, at middle hardly twice as wide as diameter of anterior ocellus. 3-4 pairs of strong inclinate frontal setae, with 3-4 very short interstitials, and 1 pair of strong reclinate orbitals. Parafacial very narrow, at narrowest point hardly as wide as (♂) or slightly wider than (♀) diameter of anterior ocellus. Antenna black, flagellomere 2.5 (♂) to 2.0 (♀) times as long as wide, its tip rounded. Arista short-pubescent, bare in apical half, the longest individual hairs as long as its basal diameter. In profile, vibrissal angle well behind level of profrons. Gena narrow, at lowest eye-margin 1/2 (♂) or 3/4 (♀) width of antennal flagellomere. Palpi black, narrow. Proboscis with prementum dark brown, glossy.

*Thorax.* Ground-colour black. Scutum dull grey (♂) or brownish-grey (♀) dusted, with very weak traces of three narrow, brown vittae running through the acrostichal and dorsocentral rows, from neck to scutellum. Scutellum dusted as scutum. Pleura whitish-grey dusted. Ground-setulae very sparse, fine, but extreme anterior slope of postpronotal lobe with some short spinulose setulae in front of the setae. Acrostichal setulae in two rows. Dorsocentrals 1+3, without a short seta in front of the presutural seta. 2 intra-alars. 2 proepisternals. Scutellum with strong sub-basal lateral and apical setae, and conspicuous brown bristle-dots; disc sparsely setulose, lateral and ventral surfaces bare.

*Legs.* Black. Tarsomeres not enlarged. Fore tibia with a submedian posterior seta, without an anterodorsal. Mid femur in ♂ without anteroventral setae, with 2-3 posteroventrals in basal half; in ♀ with a few short anteroventrals in basal half, and 3-4 longer posteroventrals; 0 anterior and 2 posterior preapical setae. Mid tibia with 1 anterodorsal and 1 posterodorsal seta. Hind coxa with 1 strong and 1-2 short setae on outer posterior edge. Hind femur in ♂ with 1 posteroventral at middle, and with several longer setulae basad of it, and 2



Figs. 2–3. *Coenosia wernerae* n. sp. (paratype). 2 (left). Hypopygium, lateral view; 3 (right). Cercal plate. Scale: 0.5 mm.

anteroventrals in apical half; in ♀ with several posteroventrals in basal half, and a loose row of setae along anteroventral surface; 1 dorsal but 0 posterodorsal preapical. Hind tibia with 1 anterodorsal, 1 anteroventral and 1 posterodorsal seta; dorsal preapical strong, anterodorsal apical short, the dorsal placed above the anterodorsal by a distance equal to basal width of tibia.

*Wing.* Clear, smoky in ♀. Basicosta yellowish to brown, tegula black. Costal spine not distinct from the costal setulae. Costa continuing to apex of vein M1+2. Cross-vein r-m placed beyond the point where vein R1 enters costa. Cross-vein dm-cu straight, upright, in ♂ only 2/3 as long as the apical section of vein CuA1, in ♀ slightly longer. Anal vein (A1+CuA2) extremely short. Alula well-developed. Calypters white, margins yellowish in ♀, lower one projecting far beyond upper one. Haltere yellow.

*Abdomen.* Ground-colour black, grey dusted. In ♂, tergite 1+2 broadly brownish medially; tergites 3–5 each with a pair of brown quadrate spots running from fore-margin to the grey-dusted hind-marginal incisure of each tergite, each spot much broader than the grey dusted area separating them medially. In ♀, tergite 1+2 with a pair of oval brown spots; tergites 3 and 4 each with a pair of brown quadrate spots, smaller than in ♂, not quite reaching fore-margins of tergites and more broadly separated; tergite 5 with a pair of small oval brown spots. Genital segments of ♂ light grey dusted. Tergites 3 and 4 each with 2 lateral discals, tergite 4 also with a lateral marginal; tergite 5 with 3 pairs each of discals and marginals, the marginals very reduced in ♀. Sternite 1 bare (with a few setulae in 1 ♂ 1 ♀ paratypes).

♂ *genitalia.* Sternite 5 (Fig. 1) very large, grey dusted, on each side with an extensive dark area that appears darker even when macerated (stippled area in the figure). Hypopygium (Fig. 2) with the hypandrium relatively short and broad; phallapodeme, epiphallus, praego-

nite and postgonites fully developed, without setulae or hairs; aedeagus a membranous tube. Cercal plate long (Fig. 3), surstyli relatively short (their position indicated on one side in Fig. 3).

*Measurements.* Length of wing, 3.0-3.5 mm (♂), 4.0-4.5 mm (♀). Length of body, 3.5-4.0 mm (♂), 4.5-5.0 mm (♀).

**Differential diagnosis.** In HENNIG's (1961) key to males of the Palaearctic *Coenosia*, this species runs to *Coenosia nigrotincta* Hennig, described from the male sex from the Russian Far East (Apuka on the coast of the Bering Sea). It differs by the much narrower parafacial (*nigrotincta*: equal or almost equal to width of flagellomere); scutum without distinct vittae (*nigrotincta*: three distinct brown vittae); no strong setula in front of presutural dorsocentral (*nigrotincta*: with a short seta, half as long as the strong presutural dorsocentral); dark spots on tergites 3-5 quadrate (*nigrotincta*: abdominal spots round to oval); tibiae black (*nigrotincta*: tibiae yellow on basal third); mid femur with no anteroventral and 2 posteroventral setae (*nigrotincta*: mid femur with complete rows of anteroventral and posteroventral setae); hind femur with 1 posteroventral at middle and 2 anteroventrals in apical half (*nigrotincta*: hind femur with complete rows of anteroventral and posteroventral setae).

In HENNIG's key to females, this species runs to couplet 77 (76), *Coenosia luteipes* Ringdahl from the Russian Far East. However, *C. luteipes* ♀ has yellow legs, including the fore femur.

#### *Coenosia brevicauda* Pont, n. sp. (Fig. 4)

**Holotype.** ♂, Kotayk region, c 40 km N of Yerevan, Aghveran, tributary of River Hrazdan, 3.vi.2003 (D. WERNER), in BMNH.

**Paratypes.** 3 ♀, data as for holotype, in BMNH, ZMHU, IMBY.

**Etymology.** The name refers to the unusual form of the ♂ abdomen (Latin: brevis = short, cauda = tail).

**Diagnosis.** This is in the small group of species with well developed lower calypter, 2 proepisternal setae and mainly black legs that includes *octosignata* Rondani, *sexpustulata* Rondani, and *styriaca* Hennig, but can be immediately distinguished by the short, ovate form of the ♂ abdomen and enlarged genitalia (Fig. 4).

**Description.** ♂♀. *Head.* Ground-colour black. Eyes bare. Frons broad, at lunula 0.47 (♂) or 0.41 (♀) of greatest head-width. Fronto-orbital plate white pruinose, almost silvery pruinose; parafacial and gena silvery; occiput light grey. Frontal plate matt; frontal triangle short, light grey, reaching just over halfway to lunula. Fronto-orbital plate very narrow, at middle hardly twice as wide as diameter of anterior ocellus. 3-4 pairs of strong inclinate frontal setae, occasionally with an interstitial, and 1 pair of strong reclinate orbitals. Parafacial narrow, at narrowest point slightly wider than diameter of anterior ocellus. Antenna black, flagellomere 3 times as long as wide, its tip pointed but not produced. Arista short-pubescent, the longest individual hairs hardly as long as its basal diameter. In profile, vibrissal angle well behind level of profrons. Gena at lowest eye-margin as wide as width of antennal flagellomere. Palpi black, narrow. Proboscis with prementum dark brown, glossy.

*Thorax.* Ground-colour black. Scutum pale grey dusted, with a pair of very weak narrow, brown vittae running through the dorsocentral rows, from first to last dorsocentral, and, in ♀, with traces of a weak median vitta running through the acrostichal rows. Scutellum and pleura also pale grey dusted. Ground-setulae sparse, fine, anterior slope of postpronotal lobe without spinulose setulae. Acrostichal setulae in two rows. Dorsocentrals 1+3, without a

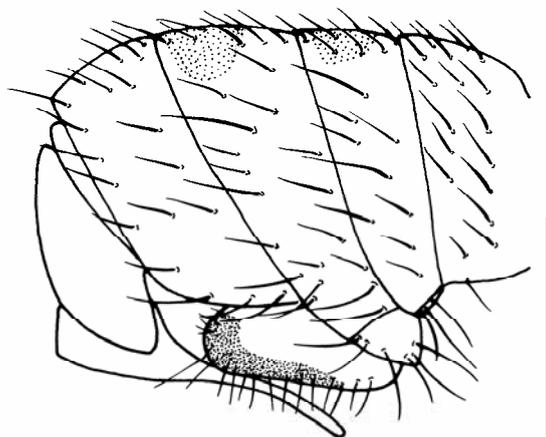


Fig. 4. *Coenosia brevicauda* n. sp. (holotype). ♂ abdomen, lateral view (not dissected). The stippled area on sternite 5 indicates the shining, undusted area. Scale: 0.5 mm.

short seta in front of the presutural seta. 2 intra-alars. 2 proepisternals. Scutellum with strong sub-basal lateral and apical setae; disc sparsely setulose, lateral and ventral surfaces bare.

*Legs.* Black, extreme tips of femora and basal fifth of tibiae yellow. Tarsomeres not enlarged. Fore tibia with a submedian posterior seta, fine in ♂, without an anterodorsal. Mid femur with 2-3 short anteroventral setae near base, and a row of stronger posteroventrals on over basal half; 0 anterior and 2 posterior preapical setae. Mid tibia with 1 anterodorsal and 1 posterodorsal seta. Hind coxa with 1 strong and 1-2 short setae on outer posterior edge. Hind femur in ♂ with 2 long posteroventral setae in basal half, and with several longer setulae in apical half, and 1 short anteroventral near base and another just before apex; in ♀ with several posteroventrals in basal half, and a loose row of setae along anteroventral surface; 1 dorsal but 0 posterodorsal preapical (but the “dorsal” much more posterodorsal in position). Hind tibia with 1 anterodorsal and 1 anteroventral seta; dorsal preapical placed a little above the anterodorsal.

*Wing.* Clear. Basicosta yellow, tegula brown. Costal spine not distinct from the costal setulae. Costa continuing to apex of vein M1+2. Cross-vein r-m placed below the point where vein R1 enters costa. Cross-vein dm-cu slightly sinuous, upright, not much shorter than the apical section of vein CuA1. Anal vein (A1+CuA2) short. Alula well-developed. Calypters and margins white, lower one projecting far beyond upper one. Haltere yellow.

*Abdomen.* Short, ovate, enlarged dorso-ventrally in ♂ (Fig. 4), normal in shape in ♀. Ground-colour black, pale grey dusted. In ♂, tergites 1+2, 3 and 4 each with a pair of large brown quadrate spots running from fore-margin to hind-margin of each tergite, each spot as broad as the broad grey dusted area separating them medially; tergite 5 with a pair of small round spots. In ♀, tergites 1+2, 3 and 4 each with a pair of brown oval spots, smaller and less well-defined than in ♂, not reaching fore-margins of tergites and more broadly separated; tergite 5 with or without a narrow median brown line. In ♂, genital segments, epanthrium and most of cercal plate shining black; genitalia large, cercal plate half length of abdomen in lateral view (Fig. 4). Tergal setae weak, only tergite 5 with a single pair of discals

in ♂, tergites 3-5 each with some weak lateral discals in ♀. Sternite 1 bare; sternites 1-5 light grey dusted, but in ♂ sternite 5 shining black along inner edge of lobes and around their tips. *Measurements*. Length of wing, 3.0 mm (♂), 3.5-4.0 mm (♀). Length of body, 3.0 mm (♂), 4.0-4.5 mm (♀).

**Differential diagnosis.** The ♂ runs to couplet 105 and to *sexpustulata* Rondani in the key to Palaearctic *Coenosia* by HENNIG (1961), and agrees with this species except that it has much reduced anteroventral and posteroventral setae on hind femur (complete rows of long anteroventrals and posteroventrals in *sexpustulata*) and in the form of the cercal plate (shorter and stouter in *sexpustulata*). The ♀ runs to couplet 111 and also to *sexpustulata* in HENNIG's key, but differs from that species in the hind femoral setation, as does the ♂.

## References

- CANZONERI, S. & D. MENEGHINI (1966): *Lispe* Latr. del Mediterraneo e Medio Oriente raccolte da A. Giordani Soika. – Bollettino del Museo Civico di Storia Naturale di Venezia 16 [1963]: 109–148.
- CANZONERI, S. & D. MENEGHINI (1972): Nuovo contributo alla conoscenza del genere *Lispe* Latr. – Bollettino del Museo Civico di Storia Naturale di Venezia 22-23 [1969-1970]: 211–214.
- GREGOR, F. (1968): Die europäischen Arten der Gattung *Myospila* Rond. (Dipt., Muscidae). – Acta entomologica bohemoslovaca 65: 299–318.
- GREGOR, F., R. ROZKOŠNÝ, M. BARTÁK & J. VAŇHARA (2002): The Muscidae (Diptera) of Central Europe. – Folia Facultatis Scientiarum Naturalium Universitatis Masarykianae Brunensis, Biologia 107: 280 pp.
- HENNIG, W. (1955-1964): Family Muscidae. In: E. LINDNER (Ed.), Die Fliegen der Paläarktischen Region 63b: 1110 pp. – Stuttgart.
- KARL, O. (1935): Aussereuropäische Musciden (Anthomyiden) aus dem Deutschen Entomologischen Institut. – Arbeiten über morphologische und taxonomische Entomologie 2: 29-49.
- PONT, A. C. (1986a): Family Fanniidae. p. 41-57. - In: Á. SOÓS & L. PAPP (Ed.), Catalogue of Palaearctic Diptera 11, Scathophagidae-Hypodermatidae. – Akadémiai Kiadó, Budapest, 346 pp.
- PONT, A. C. (1986b): Family Muscidae. p. 57-215. - In: Á. SOÓS & L. PAPP (Ed.), Catalogue of Palaearctic Diptera 11, Scathophagidae-Hypodermatidae. – Akadémiai Kiadó, Budapest, 346 pp.
- PONT, A. C. (1991): A preliminary list of the Fanniidae and Muscidae (Insecta: Diptera) from Turkey and the Middle East. – Zoology in the Middle East 5: 63-112.
- PONT, A. C. (2005): Fauna Europaea: Fanniidae and Muscidae. In: T. PAPE (Ed.), Fauna Europaea: Diptera Brachycera. – Fauna Europaea version 1.2. <http://www.faunaeur.org> (7 March 2005).
- PORTSCHINSKY, J. (1881): Diptera europaea et asiatica nova aut minus cognita. Pars I<sup>ma</sup>. – Horae Societatis Entomologicae Rossicae 16: 136–145.
- STACKELBERG, A. A. (1926): Contributions à la faune diptérologique de l'Arménie. [In Russian]. – Russkoe Entomologicheskoe Obozrenie 20: 65–68.
- ZIMIN, L. S. (1951): Insects, flies. Volume 18, part 4. Family Muscidae, true flies (tribes Muscini, Stomoxydini) [In Russian]. – Fauna SSSR (n.s.) 45: 286 pp. - Akademiya Nauk SSSR, Moscow & Leningrad.

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