

# New records of flower-visiting Muscidae (Diptera) from the Ligurian Apennines of Italy

[Neufunde von blütenbesuchenden Muscidae (Diptera)  
aus dem ligurischen Apennin Italiens]

by

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## Abstract

Nine species of flower-visiting Muscidae found on Mt. Lesima in the Ligurian Apennines are reported, eight of which are new for the province of Pavia, Italy. An annotated checklist is given of the 78 Muscidae species now known from this province.

## Key words

Muscidae, flower-visitors, Palaearctic Region, Italy, province of Pavia, new records, checklist

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## Zusammenfassung

Neun Arten von blütenbesuchenden Muscidae wurden auf dem Berg Lesima im Ligurischen Apennin gefunden, wovon acht als Neufunde für die Provinz Pavia (Italien) gemeldet werden. Eine kommentierte Artenliste behandelt alle 78 Musciden-Arten, die nunmehr aus dieser Provinz bekannt sind.

## Stichwörter

Muscidae, Blütenbesucher, paläarktische Region, Italien, Provinz Pavia, neue Nachweise, Checkliste

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## Introduction

Muscidae flies are among the most important flower visitors at high altitudes and high latitudes (e. g., PONT 1993, TIUSANEN et al. 2016). During a survey of wild pollinators in the summer of 2012 and 2013, several flies were captured and identification of the specimens belonging to the Muscidae revealed a new record for the Apennines, namely *Drymeia vicana* (HARRIS, 1780) which, despite being a rather common species in Central Europe, is known in Italy only from Sulden in the South Tyrol (HENNIG 1962: 668) [as *Trichopticoides decolor* (FALLÉN, 1824)] and from Monte Bondone in the province of Trento (Viote di M. Bondone, Trento, leg. D. AVESANI 2010). The survey took place on two grasslands of the Ligurian Apennines (Northern Apennines) of Italy, on Mt. Lesima at 1650 m a. s. l. (44°41.60'N 09°15.26'E). Administratively, the area belongs to the province of Pavia (Lombardy) and Mt. Lesima is its highest peak. For further details, see BIELLA & GROPPALI (2014).

All the material discussed here was collected by the senior author. The species collected are listed below, along with the plants on which they were captured while visiting the inner part of the corolla. Details such as repository collection (PCPB = private collection of Paolo BIELLA; MCSNV = Museo civico di Storia Naturale di Verona, collection of Daniele AVESANI), and status of the specimens (dry or in alcohol) are also provided. Unfortunately, species of the families Anthomyiidae, Fanniidae and Scathophagidae are still unidentified.

The Diptera of the province of Pavia have been surprisingly neglected in recent times: the keystone works of BEZZI (1891, 1892, 1922) and CORTI (1893, 1894, 1897, 1907) [CORTI (1907) without Muscidae] are also the last published surveys of the province. BEZZI mainly focused on the surroundings of Pavia city, in the Po plain, with only a minor fraction of his records from localities in the Apennine part of the province, while CORTI collected specimens also from the hilly areas (municipalities like Zavattarello or Romagnese). More than a century after their contributions, we have updated the nomenclature of their published lists (see Table 1).

**Table 1:** The muscid species recorded by BEZZI (1891, 1892, 1922) and CORTI (1893, 1894, 1897) from the province of Pavia, Italy.

Species (updated nomenclature)	Literature
<i>Muscina levida</i> (HARRIS, 1780)	BEZZI (1891) [as <i>Muscina assimilis</i> FALLÉN]
<i>Muscina pascuorum</i> (MEIGEN, 1826)	BEZZI (1891)
<i>Muscina prolapsa</i> (HARRIS, 1780)	BEZZI (1891) [as <i>Muscina pabulorum</i> FALLÉN]
<i>Muscina stabulans</i> (FALLÉN, 1817)	BEZZI (1891)
<i>Azelia cilipes</i> (HALIDAY, 1838)	BEZZI (1892)
<i>Azelia nebulosa</i> ROBINEAU-DESVOIDY, 1830	CORTI (1897) [as <i>Azelia macquarti</i> STAEGER]
<i>Azelia triquetra</i> (WIEDEMANN, 1817)	BEZZI (1891)
<i>Thricops nigritellus</i> (ZETTERSTEDT, 1838)	BEZZI (1891) [as <i>Spilogaster nigritella</i> ZETTERSTEDT]
<i>Hydrotaea capensis</i> (WIEDEMANN, 1818)	BEZZI (1891) [as <i>Ophyra anthrax</i> MEIGEN]
<i>Hydrotaea cyrtoneurina</i> (ZETTERSTEDT, 1845)	CORTI (1893) [as <i>Onodontha cyrtoneurina</i> ZETTERSTEDT]; CORTI (1894) [as <i>Onodontha silvicola</i> LOEW]
<i>Hydrotaea dentipes</i> (FABRICIUS, 1805)	CORTI (1893)
<i>Hydrotaea ignava</i> (HARRIS, 1780)	BEZZI (1891) [as <i>Ophyra leucostoma</i> WIEDEMANN]
<i>Hydrotaea meteorica</i> (LINNAEUS, 1758)	CORTI (1894)
<i>Hydrotaea penicillata</i> (RONDANI, 1866)	CORTI (1894) [as <i>Onodontha penicillata</i> RONDANI]
<i>Mesembrina meridiana</i> (LINNAEUS, 1758)	BEZZI (1891)
<i>Polietes lardarius</i> (FABRICIUS, 1781)	CORTI (1893)
<i>Musca autumnalis</i> DE GEER, 1776	BEZZI (1891) [as <i>Musca corvina</i> FABRICIUS]
<i>Musca domestica</i> LINNAEUS, 1758	BEZZI (1891)
<i>Musca tempestiva</i> FALLÉN, 1817	BEZZI (1891)
<i>Morellia hortorum</i> (FALLÉN, 1817)	BEZZI (1891) [as <i>Morellia</i> ( <i>Cyrtoneura</i> ) <i>hortorum</i> FALLÉN and as <i>Morellia</i> ( <i>Cyrtoneura</i> ) <i>pilipes</i> RONDANI]
<i>Pyrellia rapax</i> (HARRIS, 1780)	BEZZI (1891) [as <i>Pyrellia suda</i> RONDANI and as <i>Pyrellia serena</i> MEIGEN]
<i>Pyrellia vivida</i> ROBINEAU-DESVOIDY, 1830	BEZZI (1891) [as <i>Pyrellia cadaverina</i> (LINNAEUS) of authors]
<i>Dasyphora pratorum</i> (MEIGEN, 1826)	BEZZI (1891)
<i>Stomoxys calcitrans</i> (LINNAEUS, 1758)	BEZZI (1891)
<i>Haematobia irritans</i> (LINNAEUS, 1758)	CORTI (1894) [as <i>Lyperosia serrata</i> ROBINEAU-DESVOIDY]
<i>Haematobosca stimulans</i> (MEIGEN, 1824)	BEZZI (1891) [as <i>Haematobia stimulans</i> MEIGEN]
<i>Atherigona varia</i> (MEIGEN, 1826)	BEZZI (1891)
<i>Phaonia errans</i> (MEIGEN, 1826)	BEZZI (1891) [as <i>Aricia errans</i> MEIGEN]
<i>Phaonia fuscata</i> (FALLÉN, 1825)	BEZZI (1891) [as <i>Spilogaster fuscata</i> FALLÉN]
<i>Phaonia incana</i> (WIEDEMANN, 1817)	CORTI (1893) [as <i>Aricia incana</i> WIEDEMANN]
<i>Phaonia pratensis</i> (ROBINEAU-DESVOIDY, 1830)	CORTI (1893) [as <i>Aricia laeta</i> (FALLÉN) of authors]
<i>Phaonia pallida</i> (FABRICIUS, 1787)	BEZZI (1891) [as <i>Aricia pallida</i> “FALLÉN”]
<i>Phaonia rufipalpis</i> (MACQUART, 1835)	BEZZI (1891) [as <i>Aricia rufipalpis</i> MACQUART]
<i>Phaonia rufiventris</i> (SCOPOLI, 1763)	CORTI (1894) [as <i>Aricia scutellaris</i> FALLÉN]
<i>Phaonia tuguriorum</i> (SCOPOLI, 1763)	BEZZI (1891) [as <i>Aricia signata</i> MEIGEN]
<i>Phaonia valida</i> (HARRIS, 1780)	BEZZI (1892) [as <i>Aricia erratica</i> FALLÉN]
<i>Helina calceata</i> (RONDANI, 1866)	BEZZI (1892) [as <i>Spilogaster calceata</i> RONDANI]
<i>Helina clara</i> (MEIGEN, 1826)	BEZZI (1891) [as <i>Spilogaster clara</i> HOFFMANNSEGG]

Continuation of table 1

Species (updated nomenclature)	Literature
<i>Helina evecta</i> (HARRIS, 1780)	BEZZI (1891) [as <i>Aricia lucorum</i> FALLÉN and as <i>Spilogaster duplicata</i> MEIGEN var. <i>venosus</i> RONDANI (“ut species”)]
<i>Helina impuncta</i> (FALLÉN, 1824)	BEZZI (1891) [as <i>Spilogaster indistincta</i> RONDANI]
<i>Helina lasiophthalma</i> (MACQUART, 1835)	CORTI (1897) [as <i>Aricia lasiophthalma</i> MACQUART]
<i>Helina latitarsis</i> RINGDAHL, 1924	BEZZI (1891) [as <i>Aricia nivalis</i> ZETTERSTEDT]
<i>Helina pertusa</i> (MEIGEN, 1826)	CORTI (1893) [as <i>Spilogaster hirticrura</i> RONDANI ]
<i>Helina quadrinotata</i> (MEIGEN, 1826)	CORTI (1893) [as <i>Aricia quadrinotata</i> MEIGEN]
<i>Helina reversio</i> (HARRIS, 1780)	CORTI (1891) [as <i>Spilogaster coesia</i> MACQUART and as <i>Spilogaster duplicata</i> MEIGEN]
<i>Helina sexmaculata</i> (PREYSSLER, 1791)	BEZZI (1891) [as <i>Spilogaster uliginosa</i> FALLÉN]
<i>Helina tetrastigma</i> (MEIGEN, 1826)	CORTI (1894) [as <i>Spilogaster flagripes</i> RONDANI]
<i>Mydaea corni</i> (SCOPOLI, 1763)	CORTI (1897) [as <i>Spilogaster pagana</i> FABRICIUS]
<i>Mydaea urbana</i> (MEIGEN, 1826)	BEZZI (1891) [as <i>Spilogaster urbana</i> MEIGEN]
<i>Myospila meditabunda</i> (FABRICIUS, 1781)	BEZZI (1891)
<i>Hebecnema fumosa</i> (MEIGEN, 1826)	BEZZI (1891) [as <i>Aricia solifuga</i> RONDANI]
<i>Hebecnema nigricolor</i> (FALLÉN, 1825)	CORTI (1897) [as <i>Spilogaster nigricolor</i> FALLÉN]
<i>Hebecnema umbratica</i> (MEIGEN, 1826)	BEZZI (1891) [as <i>Aricia umbratica</i> MEIGEN]
<i>Hebecnema vespertina</i> (FALLÉN, 1823)	BEZZI (1922) [also as <i>Hebecnema affinis</i> MALLOCH]
<i>Graphomya maculata</i> (SCOPOLI, 1763)	BEZZI (1891)
<i>Spilogona surda</i> (ZETTERSTEDT, 1845)	CORTI (1894) [as <i>Limnophora surda</i> ZETTERSTEDT]
<i>Limnophora riparia</i> (FALLÉN, 1824)	BEZZI (1891) [as <i>Coenosia riparia</i> FALLÉN]
<i>Limnophora tigrina</i> (AM STEIN, 1860)	BEZZI (1891) [as <i>Spilogaster notata</i> FALLÉN]
<i>Limnophora triangula</i> (FALLÉN, 1825)	BEZZI (1891) [as <i>Coenosia triangula</i> FALLÉN]
<i>Lispe consanguinea</i> LOEW, 1858	BEZZI (1891)
<i>Lispe melaleuca</i> LOEW, 1847	CORTI (1893) [as <i>Lispe leucospila</i> RONDANI ]
<i>Lispe tentaculata</i> (DE GEER, 1776)	BEZZI (1891)
<i>Lispocephala verna</i> (FABRICIUS, 1794)	CORTI (1893) [as <i>Coenosia verna</i> FABRICIUS]
<i>Macrorchis meditata</i> (FALLÉN, 1825)	BEZZI (1891)
<i>Coenosia atra</i> MEIGEN, 1830	BEZZI (1891) [as <i>Coenosia palustris</i> ROBINEAU-DESVOIDY]
<i>Coenosia campestris</i> (ROBINEAU-DESVOIDY, 1830)	BEZZI (1891) [as <i>Coenosia sexnotata</i> MEIGEN of authors]
<i>Coenosia genualis</i> RONDANI, 1866	BEZZI (1891) [as <i>Coenosia genualis</i> RONDANI]
<i>Coenosia mollicula</i> (FALLÉN, 1825)	BEZZI (1891) [as <i>Hoplogaster mollicula</i> FALLÉN]
<i>Coenosia testacea</i> (ROBINEAU-DESVOIDY, 1830)	CORTI (1894) [as <i>Coenosia elegantula</i> RONDANI]
<i>Coenosia tigrina</i> (FABRICIUS, 1775)	CORTI (1893) [as <i>Caricea leonina</i> RONDANI and as <i>Caricea tigrina</i> FABRICIUS]

Their combined papers record 70 Muscidae species that are valid today (Table 1), all of which were included in the Italian checklist (GORODKOV et al. 1995). As a result of the survey of Mt Lesima, the list of Muscidae for the province of Pavia is expanded to 78 species.

## Results

***Drymeia vicana* (HARRIS, 1780).** – **Material:** 1 ♀, pinned, 14.6.2013 (PCPB). – **Flower observation:** *Tanacetum corimbosum* (L.) SCH. BIP. (Asteraceae). – **Remarks:** This species is known in Italy only from the Eastern Alps: Sulden in South Tyrol (HENNIG 1962) and province of Trento (Mt. Bondone, 1400–1500 m, 22.5.2010, leg. D. AVESANI).

***Drymeia hamata* (FALLÉN, 1823).** – **Material:** 9 ♂♂ 11 ♀♀, 14 pinned and 6 in alcohol, 7.2012, 11.7.2013, 26.7.2013, 2.8.2013, 9.8.2013 (all PCPB). – **Flower observations:** *Hypericum richeri* VILL. (Hypericaceae), *Leucanthemum heterophyllum* (WILLD.) DC. (Asteraceae), *Serratula tinctoria* L. (Asteraceae), *Solidago virgaurea* L. (Asteraceae), *Knautia drymeia* HEUFF. (Dipsacaceae).

***Hydrotaea pellucens* PORTSCHINSKY, 1879.** – **Material:** 1 ♂, pinned, 11.7.2013 (MCSNV). – **Flower observation:** *Laserpitium siler* L. (Apiaceae).

***Thricops nigrifrons* (ROBINEAU-DESVOIDY, 1830).** – **Material:** 1 ♂, pinned, 30.6.2013 (MCSNV). – **Flower observation:** *Laserpitium siler* L. (Apiaceae).

***Musca autumnalis* DE GEER, 1776.** – **Material:** 1 ♀, in alcohol, 11.7.2013 (PCPB). – **Flower observation:** *Laserpitium siler* L. (Apiaceae). – **Remark:** Previously recorded from the province of Pavia (see Table 1).

***Neomyia cornicina* (FABRICIUS, 1781).** – **Material:** 2 ♂♂ 1 ♀, pinned, 11.7.2013 (PCPB). – **Flower observations:** *Laserpitium siler* L., *Laserpitium gallicum* L. (Apiaceae).

***Phaonia serva* (MEIGEN, 1826).** – **Material:** 3 ♂♂ 4 ♀♀, 4 pinned and 3 in alcohol, 30.6.2013, 5.7.2013, 26.7.2013 (all PCPB). – **Flower observations:** *Laserpitium siler* L. (Apiaceae), *Leucanthemum heterophyllum* (WILLD.) DC. (Asteraceae), *Ranunculus bulbosus* L. (Ranunculaceae).

***Helina moedlingensis* (SCHNABL, 1911).** – **Material:** 1 ♂ 3 ♀♀, pinned, 26.7.2013, 2.8.2013, 9.8.2013 (all MCSNV). – **Flower observations:** *Bupleurum ranunculoides* L., *Laserpitium siler* L. (Apiaceae), *Knautia drymeia* HEUFF. (Dipsacaceae).

***Spilogona dispar* (FALLÉN, 1823).** – **Material:** 3 ♂♂, 2.8.2013, 9.8.2013, in alcohol (all PCPB). – **Flower observations:** *Bupleurum ranunculoides* L. (Apiaceae), *Tanacetum corimbosum* (L.) SCH. BIP. (Asteraceae), *Serratula tinctoria* L. (Asteraceae).

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## Literature

- BEZZI, M. (1891): Contribuzione alla fauna ditterologica della provincia di Pavia. Parte prima. – *Bullettino della Società Entomologica Italiana* **23**: 21–91.
- BEZZI, M. (1892): Contribuzioni alla fauna ditterologica della provincia di Pavia. Parte seconda. – *Bullettino della Società Entomologica Italiana* **24**: 64–82 and 97–151.
- BEZZI M. (1922): Le specie italiane del gen. di Ditteri *Hebecnema* SCHNABL. – *Bollettino della Società Entomologica Italiana* **54**: 117–122.
- BIELLA, P. & GROPPALI, R. (2014): *Campylomorphus homalisinus* (Elateridae): a new species for Lombardy (Italy), with notes on its ecology, distribution and biogeography. – *Biodiversity Data Journal* **2**: 11 pp. [doi: 10.3897/BDJ.2.e1075].
- CORTI, E. (1893): Aggiunte alla fauna ditterologica della provincia di Pavia. Prima Centuria. – *Bullettino della Società Entomologica Italiana* **25**: 33–41.
- CORTI, E. (1894): Aggiunte alla fauna ditterologica della provincia di Pavia. Seconda Centuria. – *Bullettino della Società Entomologica Italiana* **26**: 389–395.
- CORTI, E. (1897): Aggiunte alla fauna ditterologica della provincia di Pavia. Terza Centuria. – *Bullettino della Società Entomologica Italiana* **29**: 136–143.
- CORTI, E. (1907): Aggiunte alla fauna ditterologica della provincia di Pavia. Quarta centuria. – *Bullettino della Società Entomologica Italiana* **38**: 80–90.
- GORODKOV, K.; PONT, A. C. & ROZKOŠNÝ, R. (1995): Fascicolo 77. Diptera Muscoidea. – 18 pp. – In: MINELLI, A.; RUFFO, S. & LA POSTA, S. (eds): Checklist delle specie della fauna italiana **66–78**: 6 unpaginated pp. + 198 pp.; Bologna: Editioni Calderini.

- HENNIG, W. (1962): 63b. Muscidae. – Lieferung 225: Pp. 625–672. – In: LINDNER, E. (ed.) (1955–1964): Die Fliegen der palaearktischen Region 7(2): 1110 pp.; Stuttgart: E. Schweizerbart'sche Verlagsbuchhandlung.
- PONT, A. C. (1993): Observations on anthophilous Muscidae and other Diptera (Insecta) in Abisko National Park, Sweden. – *Journal of Natural History* **27**: 631–643.
- TIUSANEN, M.; HEBERT, P. D. N.; SCHMIDT, N. M. & ROSLIN, T. (2016): One fly to rule them all – muscid flies are the key pollinators in the Arctic. – *Proceedings of the Royal Society (B)* **283**: 8 pp. [doi: 10.1098/rspb.2016.1271].

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