

## More records of Muscidae (Diptera) from Croatia with a short comment on findings of *Helina interfusa* (Pandellé) reported to date in Europe

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ZIELKE E. & BAŇAŘ P. 2018: More records of Muscidae (Diptera) from Croatia with a short comment on findings of *Helina interfusa* (Pandellé) reported to date in Europe *Acta Musei Moraviae, Scientiae biologicae* **103(2): 281–285**. – Study of a small collection of Muscidae from Croatia revealed 14 species belonging to 6 genera of 4 subfamilies. One species each of the genera *Musca*, *Mydaea* and *Helina interfusa* (Pandellé, 1899), a little-known species from Europe, are recorded as new for the country. The validity of hitherto published records of *H. interfusa* in Europe is discussed. The number of known Muscidae from Croatia is raised to 102 species.

**Key words.** Diptera, Muscidae, new records, Croatia, *Helina interfusa* (Pandellé), European records

### Introduction

A compilation of the Muscidae species known from Croatia was published recently (ZIELKE & BAŇAŘ 2017), based primarily on information derived from literature and muscids collected in 2016. In total, 97 species belonging to 27 genera and five subfamilies were listed. The current study, of another small collection of 26 Muscidae collected in 2017 at five localities in Croatia, revealed a total of 14 species. Three of which are new records for Croatia. *Helina interfusa* Pandellé, 1899 is one of them, a rare species reported by *Fauna Europaea* (PONT 2013) from only four European countries. Details of the findings are presented below.

### Material and Methods

Yellow pan-traps used by the second author in May and June 2017 for collecting specimens of Coleoptera and Hymenoptera in Croatia at five localities incidentally caught the Muscidae that are subject of the current investigation. [The flies had already been collected at Šeraje and Kringa at exactly the same locations in 2016 (ZIELKE & BAŇAŘ 2017)]. The locations are briefly characterized as follows:

- Central Istria, 0.5 km west of Šeraje village (N45°11'41"E13°43'00"), c. 150 m a.s.l., close to village on a narrow (10 m) forest road through Mediterranean low canopy oak forest with shrubs and small trees. The area was disturbed, with large stones and the remnants of branches of chopped-up trees. Muscids were collected from a row of 30 yellow pan traps.

- Central Istria, 1.5 km east of Kringa village, valley of the Draga stream (N45°10'E13°51'), 160 m a.s.l. Agricultural landscape close to the stream, after harvest season. Muscids were collected from two rows of 40 yellow pan traps each, one row located on a field after harvest and the other placed in high grassland close to a forest.
- Western Istria 0.5 km south of Flengi village (N45°09'E13°39'), 60 m a.s.l., mowed meadow. Muscids were collected from a total of 30 yellow pan traps.
- Western Istria, Radmani village (45°12'E13°40') 155m a.s.l., mowed garden in village. Muscids were collected from a row of 20 yellow pan traps.
- Western Istria, northern part of Vrsar village (N45°09'E13°36'), 4 m a.s.l., grassland margin with flowering plants. Muscids were collected from two rows of a total of 40 yellow pan traps.

The trapped muscids were preserved in 80% ethanol. Each fly was later mounted on a pin. The keys to the Muscidae of the Palaearctic Region by HENNIG (1964) and to the Muscidae of Central Europe published by GREGOR *et al.* (2016) were the main sources used for identification.

The classification of the Muscidae applied by GREGOR *et al.* (2016) is also employed herein. Subfamilies, genera and their species are listed alphabetically, and the collection sites chronologically. Comments are added where pertinent. All the specimens examined are deposited in the collection of the Entomological Department of the Moravian Museum, Brno.

## Results

### Subfamily Azeliinae

*Muscina levida* (Harris, 1780): 4 ♀ Kringa, 25.–27.08.2017. The species had also been collected at about the same locality in July 2016, when it was recorded as new for Croatia (ZIELKE & BAŃAŘ 2017).

*Muscina stabulans* (Fallén, 1870): 1 ♂ 1 ♀ Radmani, 15.–28.08.2017.

*Hydrotaea ignava* (Harris, 1780): 1 ♀ Vrsar, 22.–24.08.2017.

### Subfamily Muscinae

*Musca autumnalis* De Geer, 1776: 1 ♂ Vrsar, 20.–22.08.2017; 1 ♂ Kringa, 21.–22.08.2017. **New record for Croatia.**

*Musca domestica* Linnaeus, 1758: 1 ♂ Vrsar, 27.–28.8.2017.

*Musca osiris* Wiedemann, 1830: 1 ♂ Flengi, 19.–21.08.2017.

### Subfamily Phaoniinae

*Helina evecta* (Harris, 1780): 1 ♀ Kringa, 25.–27.08.2017. The species had also been collected at about the same locality in July 2016.

*Helina interfusa* (Pandellé, 1899): 1 ♀ Radmani, 15.–28.08.2017; 1 ♀ Vrsar, 24.–26.08.2017. **New record for Croatia.**

*Helina reversio* (Harris, 1780): 1 ♀ Radmani, 15.–28.08.2017; 1 ♀ Vrsar, 24.–26.08.2017.

*Phaonia pallida* (Fabricius, 1787): 2 ♀ Radmani, 15.–28.08.2017; 2 ♀ Seraje, 17.–18.08.2017; 1 ♀ Vrsar, 27.–28.08.2017.

*Phaonia palpata* (Stein, 1897): 1 ♂ Kringa, 25.–27.08.2017. The species had also been collected in July 2016 at almost the same locality and recorded as new for Croatia.

*Phaonia trimaculata* (Bouché, 1834): 1 ♀ Vrsar, 24.–26.08.2017. The species had already been collected at other Croatian localities in July 2016 and recorded as new for Croatia (ZIELKE & BAŃAŘ 2017).

*Phaonia tuguriorum* (Scopoli, 1763): 2 ♀ Vrsar, 24.–28.08.2017.

### Subfamily Mydaeinae

*Mydaea humeralis* Robineau-Desvoidy, 1830: 1 ♂ Seraje, 17.–18.08.2017. **New record for Croatia.**

### Discussion

A previously presented list of the known muscid species from Croatia (ZIELKE & BAŃAŘ 2017) contained a total of 97 species belonging to 27 genera. Pont (unpublished personal communication, 2017) kindly provided the information that CANZONERI & MENEGHINI (1966) mentioned *Lispe consanguinea* Loew, 1858 from Croatia and *Azelia parva* Rondani, 1866 was cited from the country by VIKHREV (2015). With these two and the three newly-recorded muscids the number of known Muscidae from Croatia rises to 102 species, belonging to 28 genera and five subfamilies.

Although small, the currently studied collection revealed three species not previously reported from Croatia. One of them, *Musca autumnalis*, is widely distributed in Europe and the Asian and North African parts of the Palaearctic Region and also partly in adjacent biogeographical regions. It was reported by PONT in 1986 from Yugoslavia, and in *Fauna Europaea* (PONT 2013) the species is listed from all the countries neighbouring Croatia with the sole exception of Bosnia and Herzegovina.

The genus *Mydaea* Robineau-Desvoidy, 1830 and three of its species were recorded for the first time for Croatia in a recently presented list (ZIELKE & BAŃAŘ 2017). *Mydaea humeralis* is now the fourth species in the genus recorded from the country. According to *Fauna Europaea*, it is widely distributed in the western countries of Europe. However, it is not recorded from the countries adjacent to Croatia and the south-eastern part of Europe, with the exception of Bulgaria.

The finding of *Helina interfusa*, a little-known species originally described from France, is very interesting. The species has been recorded only from Europe; *Fauna Europaea* lists it from France, Bulgaria, the Czech Republic and Russia.

*Helina interfusa* was reported from Bulgaria by LAVČIEV in 1970 as a female collected near the town of Vidin, Western Stara Planina, on 20.9.1964. In the Catalogue of Bulgarian Muscidae, LAVČIEV (2003) referred to *H. interfusa*, but instead of listing a female he referred to one male from the same locality with the same collecting data. Neither of the two specimens of *H. interfusa* mentioned by Lavčiev was found when the muscid collections of three Bulgarian institutions were investigated (ZIELKE 2018). However, when the first author of the current paper examined the only available specimen of *H. interfusa*, at the entomological collection of the Natural History Museum, London in March 2018, it proved to be a female, collected by Lavčiev at Izvos, a small village close to the town of Vidin on 20.9.1964 and was identified and labelled by Lavčiev. There can be little doubt that this female is identical with the *H. interfusa* specimens reported in the literature mentioned above. The inconsistent assignation of sex is probably due to an error in transcription. However, closer examination of the specimen revealed that the female is not *H. interfusa* but *H. pubescens* (Stein, 1893), a species very similar to *H. interfusa*. This all indicates that *H. interfusa* has not yet been recorded from Bulgaria.

The record of *H. interfusa* from the Czech Republic is based only on a listing of the species in a compilation together with about 750 other Diptera species, all collected in a small area near Duchcov in north-western Bohemia (BARTÁK 1995). Only the date of collection (01.07.1993) is provided; no further information, e.g. numbers and sex(es) of the specimen(s) collected is given. In a later paper (BARTÁK *et al.* 2004), attention was even drawn to the first finding of *H. interfusa* in the Czech Republic, but additional information was still not provided. Since more than twenty years have passed since the original publication, recent attempts to obtain more information on the specimen(s) from the authors involved have failed and the collected specimens were not to be found for further investigation.

The validity of the recording of *H. interfusa* from Russia has not been investigated. According to *Fauna Europaea* (PONT 2013) the species has been reported from at least two locations, the central European and the eastern European areas of Russia. With the current finding of *H. interfusa* at two different localities in Croatia the species is now reported from four countries. Specimens are available from France and Croatia. The record from the Czech Republic should be substantiated by more confirmatory evidence and the data from Russia need to be checked.

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### References

- BARTÁK M. 1995: Diptera communities of "Osecká" dump near Duchcov and its environment. *Dipterologica bohemoslovaca* **7**: 5–16.
- BARTÁK M., GREGOR F. & ROZKOŠNÝ R. 2004: New records of interesting Palaearctic Muscidae (Diptera). *Folia Facultatis Scientiarum Naturalium Universitatis Masarykianae Brunensis, Biologia* **109**: 7–16.
- CANZONERI S. & MENEGHINI D. 1966: Lispe Latr. del Mediterraneo e Medio Oriente raccolte da A. Giordani Soika. *Bollettino Museo civico di Storia naturale di Venezia* **16**: 109–148.
- HENNIG, W. 1964: Muscidae. In: LINDNER, E. (ed.): *Die Fliegen der palaearktischen Region*. E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart **63b**: 1–1110 pp.
- GREGOR F., ROZKOŠNÝ R., BARTÁK M. & VAŇHARA J. 2016: Manual of Central European Muscidae (Diptera). *Zoologica* **162**: 1–220.
- LAVČIEV V. 1970: Die Fliegen (Fam. Muscidae, Diptera) im westlichen Balkengebirge. *Bulletin de l'institut de Zoologie et Musé* **30**: 119–159. (In Bulgarian, German summary.)
- LAVČIEV V. 2003: *Diptera: Fanniidae, Muscidae, Stomoxydidae*. *Catalogus Faunae Bulgaricae* **5**, Pensoft, Sofia, 77 pp.
- PONT A. C. 1986: *Family Muscidae*. In: SOÓS A. & PAPP L. (eds.): *Catalogue of Palaearctic Diptera*. Akadémiai Kiadó, Budapest, **11**: 57–215.
- PONT A. C. 2013: *Fauna Europaea: Muscidae*. In: PAPE T. & BEUK P.: *Fauna Europaea: Diptera Brachycera*. *Fauna Europaea*, version 2.6.2; <http://www.faunaeur.org>.
- VIKHEV N. E. 2015: Review of the world fauna of the genus *Azelia* (Diptera, Muscidae). *Amurian Zoological Journal* **7(1)**: 33–42.
- ZIELKE E. 2018: An update of distribution records of *Helina* R.-D. and other genera of the subfamily of Phaoniinae (Diptera: Muscidae) from Bulgaria. *Acta Musei Moraviae, Scientiae biologicae* (Brno) **103(2)**: 249–267.
- ZIELKE E. & BAŇAŘ P. 2017: First records of the genus *Mydaea* and of some other Muscidae species from Croatia (Diptera). *Acta Musei Moraviae, Scientiae biologicae* **102(1)**: 43–48.