

Hiding in plain sight: New records of Empidoidea (Dolichopodidae, Empididae, and Hybotidae) for Slovakia discovered in rural environments

†PAUL L. TH. BEUK ¹, PATRICK GROOTAERT ², PETER MANKO ³ & JOZEF OBOŇA ³

¹Natuurhistorisch Museum Maastricht, De Bosquetplein 7, 6211 KJ Maastricht, the Netherlands, ²Royal Belgian Institute of Natural Sciences, Vautier str. 29, Brussels 1000 Belgium, ³Department of Ecology, Faculty of Humanities and Natural Sciences, University of Prešov, 17. novembra 1, 081 16 Prešov, Slovakia

Abstract

In this paper, we report the results of a survey conducted at a rural site in eastern Slovakia (Lažany village) using a single Malaise trap over a five-month period (May to September 2023). A total of 45 species of Empidoidea were recorded, including 16 species of Dolichopodidae, 9 species of Empididae, and 20 species of Hybotidae. Four species represent first records for the Slovak fauna: one species of Dolichopodidae: *Neurigona abdominalis* (Fallén, 1823), and three species of Hybotidae: *Anthalia beatricella* Chandler, 1992, *Oedalea apicalis* Loew, 1859 and *Platypalpus croatiensis* Grootaert & Chvála, 1992. It is highly likely that more intensive research in rural environments will uncover many additional interesting records.

Keywords: long-legged flies, dagger flies, dance flies, faunistic, new records, Slovakia

Introduction

Empidoidea (dance flies and long-legged flies) is one of the most diverse lineages of Diptera, with approximately 13,000 species currently recognized worldwide (Pape et al. 2011), and many more species still undescribed. The superfamily is generally accepted as monophyletic, but its subdivision into families, subfamilies and tribes is still being debated (Kahanpää 2014). These flies are common in both urban and rural areas (Kechev & Ivanova 2015; Kechev 2017), ecosystems that are often not considered biodiversity-rich. Highly degraded remnants of native habitats, as well as heavily altered by non-native species, are frequently overlooked by researchers, resulting in the biodiversity of many towns and villages being either unstudied or understudied (Hartop et al. 2015).

The most recent Slovak checklist of Dolichopodidae (Pollet & Suvák 2009) includes 238 species. Since then, the following studies: Oboňa et al. (2012, 2021a), Maslova et al. (2018), Negrobov et al. (2019, 2020), Oboňa & Pollet (2022), Beuk et al. (2023) have increased the number of Slovak Dolichopodidae species to 254. The Empididae family includes 276 species (Chvála 2009), a number that later increased to 286 species through the works of Oboňa et al. (2014, 2016), Weele et al. (2015, 2016, 2017). The Hybotidae family includes 170 species (Chvála 2009), which was later increased to 175 by Weele et al. (2015, 2018) and Oboňa et al. (2021b).

The aim of our study is to present faunal data for the Empidoidea of the rural environment of Lažany village, obtained using a Malaise trap.

Material and methods

Locality data

Slovakia, Prešov district, Lažany village. Malaise trap (Figure 1), 49°02'13.7"N 21°05'45.6"E, 377 m a.s.l., collected by P. Manko. The trap was placed in a shaded area about 3 m from a small forest stream at the forest

edge, which consisted primarily of oak, hornbeam, and lime, with hazel, birch, poplar, elder, and willow along the edges. The area also featured abundant dead wood, standing dry trees, and various microhabitats, including leaf litter, decomposing leaves, bare soil, and stands of moss and herbaceous vegetation. It was located in close proximity to a mowed lawn (backyard), an orchard, and a compost heap (see also Grundmann et al. 2024).



Figure 1. Malaise trap at the studied locality. Photo: P. Manko.

Diptera were sampled by P. Manko, along with other insects, using a Malaise trap (see locality data). The trap was exposed for one week (7-day period) each month from May to September 2023: May (12.5. – 16.5.2023); June (16.6. – 23.6.2023); July (20.7. – 29.7.2023); August (19.8. – 23.8.2023); September (19.9. – 25.9.2023). The material was collected in ethanol at the end each sampling period and transported to the laboratory. Flies were sorted by J. Oboňa to the family level, fixed in 75% alcohol,

* Corresponding author: J. Oboňa. Email: jozef.obona@unipo.sk

and identified by group specialists P. L. Th. Beuk and P. Grootaert. The material preserved in alcohol is deposited in the collection of the Natuurhistorisch Museum Maastricht, Maastricht, the Netherlands.

References to the online GBIF page resources are provided for new species recorded in the Slovak fauna.

Results and Discussion

A total of 45 species of Empidoidea were found in the rural ecosystem of Lažany village. Sixteen species belong to Dolichopodidae, nine species to Empididae, and 20 species to Hybotidae. A detailed overview is provided in the Annotated list of recorded species.

Table 1. Summary of recorded taxa of individual families during the months.

Number of spp.	May	June	July	August	September
Dolichopodidae	7	8	10	1	0
Empididae	5	3	1	1	3
Hybotidae	9	9	7	1	2

The months of August and September showed lower species diversity across all families, while May to July (see Table 1) exhibited the highest diversity. The number of species in the Dolichopodidae family increased from May to July, while the abundance of Empididae and Hybotidae decreased. This may suggest a redistribution of ecological niches over time, potentially reducing mutual competition.

Annotated list of recorded species

Family: Dolichopodidae

Argyra atriceps Loew, 1857

Material examined: May, 1♂; June, 1♂; July, 1♂.

Argyra diaphana (Fabricius, 1775)

Material examined: May, 2♂♂, 1♀.

Argyra grata Loew, 1857

Material examined: July, 1♀.

Argyra ilonae Gosseries, 1988

Material examined: June, 2♂♂; July, 1♂.

Argyra sp.

Material examined: June, 1♀.

Dolichopus arbustorum Stannius, 1831

Material examined: July, 5♂♂.

Dolichopus claviger Stannius, 1831

Material examined: July, 1♂.

Dolichopus sp.

Material examined: August, 1♀.

Medetera sp.

Material examined: June, 1♂.

Neurigona abdominalis (Fallén, 1823)

Material examined: June, 1♂.

<https://www.gbif.org/species/1606727>

Note: Species known from the Czech Republic, Denmark, England, Finland, Germany, Norway, Poland, Russia, Sweden, and Turkey (Tonguc et al. 2013). **First record for Slovakia.**

Neurigona erichsoni (Zetterstedt, 1843)

Material examined: July, 1♂.

Neurigona pallida (Fallén, 1823)

Material examined: May, 1♂.

Neurigona quadrifasciata (Fabricius, 1781)

Material examined: June, 1♀.

Rhaphium albifrons Zetterstedt, 1843

Material examined: July, 1♂.

Rhaphium appendiculatum Zetterstedt, 1849

Material examined: May, 3♂♂; June, 2♂♂.

Rhaphium commune (Meigen, 1824)

Material examined: May, 2♂♂; July, 1♂.

Rhaphium riparium (Meigen, 1824)

Material examined: May, 4♂♂.

Rhaphium sp.

Material examined: May, 1♀.

Sciapus platypterus (Fabricius, 1805)

Material examined: June, 2♂♂; July, 1♂.

Xanthochlorus tenellus (Wiedemann, 1817)

Material examined: July, 1♀.

Family: Empididae

Chelifera precabunda Collin, 1961

Material examined: June, 1♂; September, 1♂.

***Chelifera precatória* (Fallén, 1816)**

Material examined: May, 1♂, 2♀♀; June, 3♂♂.

***Chelifera stigmatica* (Schiner, 1862)**

Material examined: September, 1♂.

***Empis lutea* Meigen, 1804**

Material examined: June, 7♂♂, 1♀; July, 4♂♂, 2♀♀; August, 2♂♂.

***Empis stercorea* Linnaeus, 1761**

Material examined: May, 2♂♂.

***Empis trigramma* Wiedemann, 1822**

Material examined: May, 1♂.

***Hilara cornicula* Loew, 1873**

Material examined: May, 4♂♂.

***Rhamphomyia crassirostris* (Fallén, 1816)**

Material examined: May, 3♂♂.

***Rhamphomyia spinipes* (Fallén, 1816)**

Material examined: September, 1♂.

Family: Hybotidae***Anthalia beatricella* Chandler, 1992**

Material examined: May, 3♂♂, 2♀♀; June, 3♂♂.

<https://www.gbif.org/species/5056370>

Note: Species known from Austria, Czech Republic, England, and Switzerland (Chandler 1992; Chvála & Vonicka 2008). **First record for Slovakia.**

***Drapetis flavipes* Macquart, 1834**

Material examined: July, 2♂♂.

***Elaphropeza ephippiata* (Fallén, 1815)**

Material examined: June, 7♂♂, 1♀; July, 4♂♂, 2♀♀; August, 2♂♂.

***Euthyneura gyllenhali* (Zetterstedt, 1838)**

Material examined: May, 1♂, 1♀.

***Euthyneura myrtilli* Macquart, 1836**

Material examined: May, 1♀.

***Ocydromia glabricula* (Fallén, 1816)**

Material examined: June, 1♀.

***Oedalea apicalis* Loew, 1859**

Material examined: May, 1♀.

<https://www.gbif.org/species/1458599>

Note: Widespread in Europe, but uncommon (Chvála 2004a). **First record for Slovakia.**

***Oedalea zetterstedti* Collin, 1926**

Material examined: May, 5♂♂, 3♀♀; June, 1♀.

***Platypalpus candicans* (Fallén, 1815)**

Material examined: June, 1♀.

***Platypalpus croatiensis* Grootaert & Chvála, 1992**

Material examined: July, 1♂.

<https://www.gbif.org/species/1457797>

Note: Known only from Croatia (Grootaert & Chvála 1992; Chvála 2004b). **First record for Slovakia.**

***Platypalpus fuscicornis* (Zetterstedt, 1842)**

Material examined: June, 3♂♂.

***Platypalpus major* (Zetterstedt, 1842)**

Material examined: May, 2♀♀.

***Platypalpus mikii* (Becker, 1890)**

Material examined: July, 1♂.

***Platypalpus pallipes* (Fallén, 1815)**

Material examined: May, 1♂; September, 5♂♂.

***Platypalpus pectoralis* (Fallén, 1815)**

Material examined: July, 1♂.

***Tachydromia annulimana* Meigen, 1822**

Material examined: July, 1♂.

***Tachypeza fennica* Tuomikoski, 1932**

Material examined: May, 1♂; June, 1♂; July, 1♂.

***Tachypeza nubila* (Meigen, 1804)**

Material examined: June, 1♂; September, 1♂.

***Trichina bilobata* Collin, 1926**

Material examined: June, 1♂.

***Trichina elongata* Haliday, 1833**

Material examined: May, 1♀.

Conclusion

The first record *N. abdominalis* (Dolichopodidae) increased the number of Slovak Dolichopodidae species to 255, while the records of *A. beatricella*, *O. apicalis*, and *P. croatiensis* (all Hybotidae) raised the number of Slovak Hybotidae species to 178.

Intensive research into the biodiversity of rural environments can yield much more valuable data, as demonstrated by results from this trap, which was also employed to study other Diptera families. For instance, Kurina et al. (2024) studied Bibionomorph gnats, Grundmann et al. (2024) investigated Phoridae, and Oboňa et al. (2025) reported interesting and rare fly species from miscellaneous families.

Acknowledgements

We would especially like to thank the anonymous reviewers for their constructive comments, which greatly improved the manuscript. This work was supported by the Slovak Scientific Grant Agency, contract no. VEGA 1/0213/22, and by the Slovak Research and Development Agency under the contract no. APVV-20-0140.

References

- Beuk P, Barlog M, Csanády A, Dvořáková K, Dvořák L, Haenni JP, Ježek J, Manko P, Mlynárová L, Tej B, Oboňa J. 2023. Some Diptera records of National Nature Reserves Dreveník and Sivá Brađa (Slovakia). *Acta Musei Silesiae, Scientiae Naturales* 72: 45–60.
- Chandler P. 1992. *Anthalia beatrice* sp. n. and two other additions to the British list of Oedaleini (Diptera, Empididae). *Dipterists Digest* 12: 16–22.
- Chvála M. 2024a. *Oedalea apicalis* Loew, 1859. [Accessed 8 January 2024]. In: Fauna Europaea [Internet]. Available from: http://www.faunaeur.org/full_results.php?id=137966
- Chvála M. 2024b. *Platypalpus croatiensis* Grootaert & Chvála, 1992. [Accessed 8 January 2024]. In: Fauna Europaea [Internet]. Available from: http://www.faunaeur.org/full_results.php?id=138088
- Chvála M. 2009a. Empididae Latreille, 1804 [Accessed 8 January 2024]. In: Jedlička L, Kúdela M, Stloukalová V, eds. Checklist of Diptera of the Czech Republic and Slovakia. Electronic version 2. Available from: <http://www.edvis.sk/diptera2009/families/empididae.htm>
- Chvála M. 2009b. Hybotidae Fallén, 1816 [Accessed 8 January 2024]. In: Jedlička L, Kúdela M, Stloukalová V, eds. Checklist of Diptera of the Czech Republic and Slovakia. Electronic version 2. Available from: <http://www.edvis.sk/diptera2009/families/hybotidae.htm>
- Chvála M, Vonicka P. 2008. Hybotidae (Diptera) of the Jizerské hory Mts and Frýdlant region (northern Bohemia, Czech Republic). *Sborník Severočeského muzea, Přírodní Vědy* 26: 237–251.
- Grootaert P, Chvála M. 1992. Monograph of the genus *Platypalpus* (Diptera: Empidoidea, Hybotidae) of the Mediterranean region and the Canary Islands. *Acta Universitatis Carolinae Biologica* 36: 1–226.
- Grundmann B, Manko P, Oboňa J. 2024. Overlooked insects in neglected ecosystem: new records of Phoridae for Slovakia discovered in rural environment. *Historia naturalis bulgarica* 46(4): 109–118.
- Hartop EA, Brown BV, Disney RHL. 2015. Opportunity in our ignorance: urban biodiversity study reveals 30 new species and one new Nearctic record for Megaselia (Diptera: Phoridae) in Los Angeles (California, USA). *Zootaxa* 3941(4): 451–484.
- Kahanpää J. 2014. Checklist of the Empidoidea of Finland (Insecta, Diptera). *Zookeys* 441: 183–207.
- Kechev M. 2017. Predatory Long-legged flies (Diptera, Empidoidea, Dolichopodidae) from the Yantra River and “Sinite Kamani” Natural Park, Bulgaria. *New knowledge Journal of science* 6(4): 115–118.
- Kechev M, Ivanova M. 2015. New records and list of known species of the family Dolichopodidae (Diptera, Empidoidea) from Croatia. *Natura Croatica: Periodicum Musei Historiae Naturalis Croatici* 24(2): 323–329.
- Kurina O, Manko P, Oboňa J. 2024. Bibionomorph gnats (Diptera: Nematocera) collected from Lažany village, Slovakia. *Acta Musei Silesiae, Scientiae Naturales* 73(2): 195–207.
- Maslova OO, Negrobov OP, Oboňa J. 2018. A new species of *Medetera* (Diptera: Dolichopodidae) from Slovakia. *Zoosystematica Rossica* 27: 196–199.
- Negrobov OP, Manko P, Oboňa J. 2019. New records of long-legged flies (Diptera: Dolichopodidae) from Slovakia. *Klapalekiana* 55(3-4): 235–237.
- Negrobov OP, Manko P, Oboňa J. 2020. A new species of *Systemus* Loew (Dolichopodidae, Diptera) from Slovakia. *Acta Musei Silesiae, Scientiae Naturales* 69(2): 161–164.
- Oboňa J, Baranová B, Hrivniak L, Kisková K, Manko P, Słowińska I. 2016. First record of the rare aquatic dance fly *Chelifera aperticauda* Collin, 1927 (Diptera: Empididae: Hemerodromiinae) from Slovakia. *Check List* 12(3): 1894–1894.
- Oboňa J, Beuk P, Dvořáková K, Dvořák L, Grootaert P, Haenni JP, Ježek J, Mlynárová L, van der Weele R, Manko P. 2021b. Selected Diptera of City Park Kolmanka, Prešov (Slovakia). *Acta Musei Silesiae, Scientiae Naturales* 70(2): 125–134.
- Oboňa J, Dvořák L, Dankanych Y, Ježek J, Manko P. 2025. Zajímavé druhy dvoukřídlých (Diptera) z lokality Lažany (východní Slovensko). (Interesting fly species (Diptera) from the Lažany village (eastern Slovakia)). *Západočeské entomologické listy* 16: 1–5.
- Oboňa J, Horvat B, Novikmec M. 2014. First record of *Wiedemannia (Chamaedipsia) mikiana* (Bezzi, 1899) (Diptera: Empididae) from Slovakia. *Klapalekiana* 50: 235–236.
- Oboňa J, Ježek J, Kanašová K, Manko P. 2021a. Hiding in plain sight: new records and endangered flies (Diptera) from a tree-hole in an urban park (Prešov, Slovakia). *Acta Musei Silesiae, Scientiae Naturales* 70(1): 75–81.
- Oboňa J, Pollet M. 2022. Five first records of long-legged flies (Diptera: Dolichopodidae) from Slovakia. *Biodiversity & Environment* 14(1): 16–18.
- Oboňa J, Pollet M, Naglis S. 2012. First records of one genus and three species of long-legged flies (Diptera: Dolichopodidae) from Slovakia. *Folia Faunistica Slovaca* 17: 357–360.
- Pape T, Blagoderov V, Mostovski MB. 2011. Order Diptera Linnaeus, 1758. In: Zhang Z-Q. (Ed) Animal biodiversity: An outline of higher-level classification and survey of taxonomic richness. *Zootaxa* 3148: 222–229.
- Pollet M, Suvák M. 2009. Dolichopodidae Latreille, 1809 [Accessed 8 January 2024]. In: Jedlička L, Kúdela M, Stloukalová V, eds. Checklist of Diptera of the Czech Republic and Slovakia. Electronic version 2. Available from: <http://www.edvis.sk/diptera2009/families/dolichopodidae.htm>
- Tonguc A, Barlas M, Grichanov IY. 2013. New records of Dolichopodidae (Diptera, Empidoidea) from inner western Anatolia (Turkey). *Turkish Journal of Zoology* 37(6): 713–716.
- van der Weele R, Baranová B, Manko P, Oboňa J. 2015. Checklist of flies families Empididae and Hybotidae (Diptera) from selected sites in Slovakia (Central Europe) with new records of five species for Slovakia. *Check List* 11(5): 1766.
- van der Weele R, Hrivniak L, Manko P, Oboňa J. 2016. Contribution to the knowledge of flies from the families Empididae and Hybotidae (Diptera) from selected Sites of Community Importance in the area of the Pieniny Mts (Slovakia). *Acta Musei Silesiae, Scientiae Naturales* 65(3): 223–226.
- van der Weele R, Kappert J, Oboňa J. 2017. *Dolichocephala ocellata* (Costa, 1854) (Diptera, Empididae) new to Slovakia. *Acta Musei Silesiae, Scientiae Naturales* 66: 97–100.
- van der Weele R, Manko P, Oboňa J. 2018. Two new species of hybotid flies (*Platypalpus sloveniensis* Bequaert, 1962 and *Tachypeza tanaisense* Kovalev in Chvála, 1975) for the fauna of Slovakia. *Biodiversity & Environment* 10(2): 18–21.