

RESULTS OF SCATTERED FAUNISTIC RESEARCH OF DIPTERA FAMILIES (ANISOPODIDAE, ATHERICIDAE AND RHAGIONIDAE) FROM SELECTED SITES IN SLOVAKIA

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ABSTRACT

*New faunistic records of flies from the families Anisopodidae, Athericidae, Rhagionidae (Diptera) from 14 localities are presented. Altogether four species of Anisopodidae, one species of Athericidae and 10 species of Rhagionidae are recorded in this study. Among the most interesting findings are the vulnerable species *Atherix ibis* (Fabricius, 1798) and two rarely collected species, *Chrysopilus helvolus* (Meigen, 1820) and *Sylvicola zetterstedti* (Edwards, 1923).*

KEYWORDS

Diptera, Anisopodidae, Athericidae, Rhagionidae, Slovakia, faunistics

INTRODUCTION

Window-gnats or wood gnats (Anisopodidae), water snipe flies or ibis flies (Athericidae) and snipe flies (Rhagionidae) are relatively small families of Diptera. A total of seven species of the family Anisopodidae are recently known from Slovakia (ŠEVČÍK, 2009a, 2011). The adults of Anisopodidae occur mainly in forest habitats, but sometimes also in gardens or on windows in houses (therefore window-gnats). The larvae are found in various decaying organic materials and are known to be involved occasionally in intestinal and urinogenital myiasis (KRIVOSHEINA, 1997). Family Athericidae is represented by three species in Slovakia (ROZKOŠNÝ, 2009a). The adults may be found along watercourses, the larvae are aquatic predators. The most abundant of the examined families is the family Rhagionidae with 26 species occurring in Slovakia (ROZKOŠNÝ, 2009b). The adults are predaceous and larvae are mostly predaceous, but some are also saprophagous. The Slovakian species of the latter family were reviewed by STRAKA (1984). After his work, no other comprehensive study on the Slovakian Rhagionidae, as well as on Anisopodidae and Athericidae, has been published.

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MATERIAL AND METHODS

Material was collected at 14 localities by a variety of methods, mainly by sweep netting, rarely by individual collecting, rearing or with the use of yellow pan traps. The captured flies were preserved in 75% ethanol and subsequently determined in laboratory by the first author. These are now deposited in the collection of the Municipal Museum Mariánské Lázně, Czech Republic. The material was identified using HAENNI (1997), KRIVOSHEINA & MENZEL (1998), MICHELSEN (1999), and ROZKOŠNÝ & SPITZER (1965). The nomenclature follows ROZKOŠNÝ (2009a, b) and ŠEVČÍK (2009a).

The following abbreviations are used: DFS – grid mapping codes of the Database of the Slovak fauna, F – female, HC – hand collecting, M – male, SW – sweep netting, VU – vulnerable, YPT – yellow pan traps.

List of collecting sites.

Site 1: Borkút nr. Haniska, Košická kotlina basin, N 48° 57' 37.07", E 21° 13' 59.01", 260 m a.s.l., 7093 DFS.

Site 2: Cigeľ, Hornonitrianska kotlina basin, N 48° 43' 4.24", E 18° 38' 54.87", 260 m a.s.l., 7277 DFS.

Site 3: Diviacka Nová Ves, Hornonitrianska kotlina basin, N 48° 44' 55.44", E 18° 29' 30.93", 240 m a.s.l., 7276 DFS.

Site 4: Hermanovce nad Topľou, Východoslovenská pahorkatina hills, N 48° 58' 10.69", E 21° 29' 23.14", 480 m a.s.l., 7095 DFS.

Site 5: Nitrianske Rudno, Hornonitrianska kotlina basin, N 48° 48' 58.56", E 18° 28' 58.68", 320 m a.s.l., 7276 DFS.

Site 6: Olavec nr. Diviacka Nová Ves, Hornonitrianska kotlina basin N 48°45' 9.04", E 18°29' 25.20", 276 m a.s.l., 7276 DFS.

Site 7: Prešov, Košická kotlina basin, N 48° 59' 45.58", E 21° 13' 54.46", 265 m a.s.l., 7093 DFS.

Site 8: Stará Lesná, Vysoké Tatry Mts., N 49° 8' 0.07", E 20° 18' 35.59", 780 m a.s.l., 6887 DFS.

Site 9: Stráňany, Spišská Magura Mts., N 48° 45' 50.86", E 21° 55' 55.27", 642 m a.s.l., 6689 DFS.

Site 10: Široké, Košická kotlina basin, N 48° 59' 26.54", E 20° 55' 36.55", 525 m a.s.l., 7091 DFS.

Site 11: Trstenec nr. Diviacka Nová Ves, Hornonitrianska kotlina basin, N 48° 44' 20.32", E 18° 28' 54.27", 285 m a.s.l., 7276 DFS.

Site 12: Vrbany (part of Diviacka Nová Ves), Hornonitrianska kotlina basin, N 48° 45' 8.39", E 18° 30' 38.41", 275 m a.s.l., 7277 DFS.

Site 13: Zlatá Baňa, Slanské vrchy Mts., N 48° 56' 40.62", E 21° 26' 10.38", 570 m a.s.l., 7094 DFS.

Site 14: Železná Breznica, Kremnické vrchy Mts., N 48° 38' 24.95", E 19° 1' 41.07", 570 - 620 m a.s.l., 7380 DFS.

RESULTS AND DISCUSSION

Survey of the species of Anisopodidae

Altogether four species (16 specimens) of window-gnats, which constitutes 57% of the species of Anisopodidae currently known from Slovakia (ŠEVČÍK, 2009a, 2011), are reported in this study. Comments on the species abundance are given by the first author according to his personal experience.

Sylvicola cinctus (Fabricius, 1787)

Material examined: Site 12, 26.3.2011, *Quercus* forest, HC, 1F; Site 3, 23.4.2011, village, HC, 1M; the same, 7.5.2011, village, HC, 1M; the same, 8.6.2011, reared from *Malus* roth hole, 1F; Site 14, 20.4.2013, brook in coniferous forest, SW, 1M; Site 1, 1.5.2014, brook, mineral wells in deciduous forest, SW, 1F; Site 6, 11.5.2014, well, brook near village, SW, 1M, 1F; Site 2, 14.5.2014, brook in deciduous forest, SW, 1F.

Comments: The most common species of this family. Recorded from several localities in Slovakia by ŠEVČÍK (2004, 2009b, 2011).

Sylvicola fuscatus (Fabricius, 1775)

Material examined: Site 13, 1.7.2013, brook in deciduous forest, SW, 1F; Site 7, 5.2014, env. of Torysa river, SW, 1F; Site 8, 16.6.2014, env. of coniferous forest, SW, 1F.

Comments: Widely distributed species, but occurring in smaller numbers than previous and following species. Recorded from Slovakia e.g. by ŠEVČÍK (2009b).

Sylvicola punctatus (Fabricius, 1787)

Material examined: Site 3, 23.4.2011, village, HC, 1M.

Comments: A relatively common species. Recorded from Slovakia e.g. by ŠEVČÍK (2009b, 2011).

Sylvicola zetterstedti (Edwards, 1923)

Material examined: Site 10, 3.5.2014, env. of river Svinka, SW, 1M, 2F (Fig. 1).

Comments: In Slovakia, this species was reliably recorded only from Hronček ponds in the Poľana Biosphere Reserve (ŠEVČÍK, 2005, 2009b). ŠEVČÍK (2009b) also mentioned the (unpublished) record of females from the Tatra Mts. The records from Šúr (STRAKA & MAJZLAN, 2010) should be verified by specialists and therefore they are not accepted here. Our record is the second verified and published one from Slovakia.



Figure 1. *Sylvicola zetterstedti* from Site 10. Photo: Josef Dvořák.

Survey of the species of Athericidae

Only one species of Athericidae was found during this study, which constitutes 33% of the Athericidae fauna of Slovakia (ROZKOŠNÝ, 2009a).



Figure 2. *Atherix ibis* from Site 1. Photo: Josef Dvořák.

Atherix ibis (Fabricius, 1798)

Material examined: Site 1, 1.5.2014, brook, mineral springs in deciduous forest, SW, 1M (Fig. 2).

Comments: Conservation status in JEDLIČKA & STLOUKALOVÁ (2001) is VU, the same situation is in the Czech Republic (KUBÍK & SPITZER, 2005). However,

several hydrobiological papers (e.g. BULÁNKOVÁ, 2011) showed that *Atherix ibis* is widely distributed across Slovakia.

Survey of the species of Rhagionidae

Altogether 10 species (based on 22 specimens) of Rhagionidae were found in this study, which constitutes 38 % of species of Rhagionidae currently known from Slovakia (ROZKOŠNÝ, 2009b).

Chrysopilus helvolus (Meigen, 1820)

Material examined: Site 7, 4.6.2014, env. of Torysa river, SW, 1M (Fig. 3).

Comments: A relatively rare species considered to be psychrophilous by SPITZER (1986) whilst preferring open forests and forest-steppes (SPITZER et al., 2005). Recently, records of *C. helvolus* were published from Stakčín-Chotinka and Snina-Cirocha (ROHÁČEK, 1995), Hronský Beňadik (STRAKA & SMETANA, 2006), Rokoš (STRAKA & MAJZLAN, 2007a), Kopáč (STRAKA & MAJZLAN, 2007b), and Bučkova jama (STRAKA, 2010). Present record is from urban ecosystem, near the city park and fountain.



Figure 3. *Chrysopilus helvolus* from Site 7. Photo: Josef Dvořák.

Chrysopilus nubecula (Fallén, 1814)

Material examined: Site 9, 16.7.2014, env. of pond, SW, 1M.

Comments: A relatively common species of light broadleaved or mixed forests (SPITZER, 1986).

Rhagio latipennis (Loew, 1856)

Material examined: Site 8, 16.6.2014, env. of coniferous forest, SW, 1F.

Comments: A species formerly classified as a rare species of mountane forests (ROZKOŠNÝ & SPITZER, 1965; SPITZER, 1986). In the Red List of invertebrates of the Czech Republic is *R. latipennis* ranked as a vulnerable species (SPITZER & BARTÁK, 2005). According to the data obtained by the first author from the last three years, this species is common, at least in western part of the Czech Republic, in shaded parts of various forest including Norway spruce monocultures (DVOŘÁK & DVOŘÁKOVÁ, 2014). Several records from Slovakia were published by ROHÁČEK (1995) and STRAKA & MAJZLAN (2006, 2007b, 2013).

Rhagio lineola Fabricius, 1794

Material examined: Site 8, 16.6.2014, env. of coniferous forest, SW, 1M.

Comments: A common species mainly of forests and shrubs, but practically eurytopic (SPITZER, 1986).

Rhagio maculatus (De Geer, 1776)

Material examined: Site 12, 17.5.2013, *Quercus* forest, SW, 1M, 1F; the same, 15.5.2014, meadow, *Quercus* forest, SW, 1M, 1F; Site 1, 1.5.2014, brook, mineral wells in deciduous forest, SW, 1M; Site 13, 10.6.2014, brook, env. of opal dump, SW, 1M.

Comments: An uncommon species of beech and fir-beech forests (SPITZER, 1986).

Rhagio notatus (Meigen, 1820)

Material examined: Site 4, 22.5.2014, env. *Fagus* forest, SW, 1M.

Comments: A common species of forests, mainly in mountains and submontane habitats (SPITZER, 1986).

Rhagio scolopaceus (Linnaeus, 1758)

Material examined: Site 12, 15.5.2014, meadow, *Quercus* forest, SW, 1M; Site 13, 10.6.2014, brook, env. of opal dump, SW, 1M, 1F; Site 5, 12.5.2014, env. of water reservoir, SW, 2F.

Comments: A common species dominating in open stands including ruderalised sites (SPITZER 1986), but practically eurytopic (L. DVOŘÁK, unpublished data).

Rhagio tringarius (Linnaeus, 1758)

Material examined: Site 7, 19.8.2014, env. of Torysa river, SW, 1F.

Comments: One of the most common species of Rhagionidae in the Czech Republic and Slovakia, practically eurytopic (ROZKOŠNÝ & SPITZER, 1965; SPITZER, 1986).

Rhagio vitripennis (Meigen, 1820)

Material examined: Site 12, 15.5.2014, meadow, *Quercus* forest, SW, 1M, 1F; Site 8, 17.6.2014, env. of coniferous forest, SW, 1M.

Comments: A common species preferring wet open and forest stands (SPITZER, 1986).

Symphoromyia melaena (Meigen, 1820)

Material examined: Site 3, 25.12.2011, *Quercus* forest, YPT, 1F; Site 12, 15.5.2014, meadow, *Quercus* forest, SW, 1F.

Comments: An uncommon species preferring oak forests (SPITZER, 1986). Recently, several localities were published by STRAKA & MAJZLAN (2007a, 2010), STRAKA (2005), STRAKA et al. (2010), and ROHÁČEK (1995).

ACKNOWLEDGEMENTS

The authors wish to thank Josef Dvořák (Praha-Hrnčiče, Czech Republic) for the photographs used in this contribution. The work was supported by projects: APVV-0059-11, ITMS: 26110230119.

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