

New distribution records for the Hungarian Tabanidae (Diptera) fauna of South-Transdanubia

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FARKAS, S. & OTÁRTICS, M.: *New distribution records for the Hungarian Tabanidae (Diptera) fauna of South-Transdanubia.*

Abstract: Horse-flies were collected with "H-trap" type traps in order to better understand the distribution of domestic species at seven sampling locations in Southern Transdanubia, in the summer of 2019. Individuals of 21 species were identified in the collected material. *Haematopota italica*, *H. pluvialis*, *Tabanus autumnalis*, *T. bromius*, *T. sudeticus*, *T. tergestinus* and *Atylotus loewianus* proved to be the most common and at the same time the largest number of species collected. The tabanid communities consisted of 9-14 species, with 2-5 eudominant species which were always present, and the number of subdominant species were also significant, while the proportion of dominant, recedents and subcedents species proved to be variable.

Keywords: Diptera, horse-fly, Tabanidae, H-trap, Tabanus, Haematopota, Transdanubia

Introduction

Horse-flies (Tabanidae) are known for their tormenting effects on humans and farm animals. A significant number of tabanid species need blood to lay eggs (MAJER 1987a), which is not only sucked from humans, but also affects many farm animals. Viruses, bacteria, and other blood parasites can enter a new host through them, so they must also be dealt with from an epidemiological point of view. Defending against them requires accurate information about their distribution, frequency community structure. Several studies have already been published on the fauna of the Southern Transdanubia (GEBHARDT 1962, MAJER 1983a,b, 1985a,b, 1988, 2001a, MAJER & KRČMAR 1998, 2007, TÓTH 1976, 1992, 1996, 2000a,b,c, 2002, 2003, 2007, 2009). The previous data was summarized by OTÁRTICS et al. (2016). The aim of our research was to collect additional ecofaunistic data in South Transdanubia.

Material and methods

Sampling locations situated in Somogy County, mostly on the floodplain of the Drava River (Table 1.). The collections were carried out from May to September 2019, in different periods of the season. For the collections, a special version of the "canopy-traps", the so-called H-trap were used. The upper part of our self-made trap was made of a

white, funnel-shaped net with a plastic container. The lower part was a shiny black rubber ball, which reflects linearly polarized light that attracts host-seeking female tabanid flies. For identification of the species, we used the keys of MAJER (1987b) and CHVÁLA et al. (1972). The classification of TISCHLER (1949), modified by SHAROVA (1981) was used for determination of the dominance structure of the communities: eudominants (with degree of dominance over 10%), dominants (5 to 10%), subdominants (2 to 5%), recedents (1 to 2%), subrecedents (< 1%).

Table 1. Data of the samplig sites

No.	Sampling site	GPS coordinate	10 × 10 km UTM grid
1.	Csokonyavisonta	46.053340N, 17.454814E	XM 80
2.	Darány	45.980927N, 17.561863E	XL 99
3.	Drávaszentes	45.993862N, 17.418238E	XL 89
4.	Drávatamási	45.937940N, 17.568327E	XL 99
5.	Ropoly	46.255665N, 17.785828E	YM 12
6.	Sántos	46.355213N, 17.878940E	YM 23
7.	Taszár	46.367036N, 17.894304E	YM 23

Results and discussion

During the sampling period, 2145 specimens of 21 species of tabanids were collected. Previously, we did not have data from the areas of Drávaszentes, Taszár and Csokonyavisonta. No new species from the area were found during the research.

The collected species of horse-flies, including localities, UTM grids, dates and numbers of collected specimens are listed below:

Chrysopsinae

Chrysops caecutiens (Linnaeus, 1758) - Ropoly (YM 12) 23. 7. 2019. (5 ♀).

Chrysops parallelogrammus Zeller, 1842 - Drávatamási (XL 99) 30. 8. 2019. (24 ♀).

Chrysops relictus Meigen, 1820 - Csokonyavisonta (XM 80) 12. 8. 2019. (1 ♀), Drávaszentes (XL 89) 23. 8. 2019. (1 ♀), Drávatamási (XL 99) 30. 8. 2019. (1 ♀).

Chrysops viduatus (Fabricius, 1794) - Darány (XL 99) 12. 8. 2019. (1 ♀), Drávaszentes (XL 89) 23. 8. 2019. (1 ♀), Ropoly (YM 12) 23. 7. 2019. (2 ♀), Sántos (YM 23) 12. 6. 2019. (2 ♀).

Tabanidae

Atylotus loewianus Villeneuve, 1920

Csokonyavisonta (XM 80) 12. 8. 2019. (1 ♀), 30. 8. 2019. (1 ♀), Darány (XL 99) 12. 8. 2019. (5 ♀), Drávaszentes (XL 89) 2. 8. 2019. (14 ♀), 12. 8. 2019. (3 ♀), 17. 8. 2019. (9 ♀), 23. 8. 2019. (58 ♀), 30. 8. 2019. (22 ♀), 10. 9. 2019. (1 ♀), Drávatamási (XL 99) 12. 8. 2019. (3 ♀), Ropoly (YM 12) 23. 7. 2019. (4 ♀), Taszár (YM 23) 15. 7. 2019. (4 ♀), 5. 8. 2019. (7 ♀), 6. 8. 2019. (4 ♀).

Haematopota italica Meigen, 1804 - Csokonyavisonta (XM 80) 12. 8. 2019. (5 ♀), 22. 8. 2019. (3 ♀), 30. 8. 2019. (16 ♀), 7. 9. 2019. (2 ♀), Darány (XL 99) 12. 8. 2019. (46 ♀), Drávaszentes (XL 89) 2. 8. 2019. (4 ♀), 12. 8. 2019. (5 ♀), 17. 8. 2019. (5 ♀), 23. 8. 2019. (15 ♀), 30. 8. 2019. (10 ♀), 4. 9. 2019. (2 ♀), Drávatamási (XL 99) 12. 8. 2019. (8 ♀), 30. 8. 2019. (13 ♀), 4. 9. 2019. (4 ♀), Ropoly (YM 12) 23. 7. 2019. (140 ♀),

Sántos (YM 23) 12. 6. 2019. (21 ♀), Taszár (YM 23) 15. 7. 2019. (1 ♀), 5. 8. 2019. (4 ♀), 6. 8. 2019. (10 ♀).

Haematopota pluvialis (Linnaeus, 1758) - Csokonyavisonota (XM 80) 12. 8. 2019. (17 ♀), 22. 8. 2019. (5 ♀), 30. 8. 2019. (8 ♀), 7. 9. 2019. (4 ♀), Darány (XL 99) 12. 8. 2019. (13 ♀), Drávaszentes (XL 89) 2. 8. 2019. (6 ♀), 12. 8. 2019. (24 ♀), 17. 8. 2019. (10 ♀), 23. 8. 2019. (26 ♀), 30. 8. 2019. (20 ♀), 10. 9. 2019. (1 ♀), Drávatamási (XL 99) 12. 8. 2019. (5 ♀), 18. 8. 2019. (5 ♀), 30. 8. 2019. (3 ♀), Ropoly (YM 12) 23. 7. 2019. (5 ♀), Sántos (YM 23) 12. 6. 2019. (4 ♀), Taszár (YM 23) 15. 7. 2019. (6 ♀), 5. 8. 2019. (5 ♀), 6. 8. 2019. (4 ♀).

Haematopota subcylindrica Pandellé, 1883 - Csokonyavisonota (XM 80) 12. 8. 2019. (1 ♀), Darány (XL 99) 12. 8. 2019. (2 ♀), Drávaszentes (XL 89) 12. 8. 2019. (1 ♀), 17. 8. 2019. (1 ♀), 23. 8. 2019. (1 ♀), 30. 8. 2019. (2 ♀), Sántos (YM 23) 12. 6. 2019. (2 ♀).

Heptatoma pellucens (Fabricius, 1776) - Sántos (YM 23) 12. 6. 2019. (1 ♀), Taszár (YM 23) 6. 8. 2019. (1 ♀).

Hybomitra bimaculata (Macquart, 1826) - Sántos (YM 23) 12. 6. 2019. (1 ♀).

Hybomitra ciureai (Séguy, 1937) - Drávaszentes (XL 89) 23. 8. 2019. (1 ♀), Ropoly (YM 12) 23. 7. 2019. (2 ♀), Sántos (YM 23) 12. 6. 2019. (3 ♀), Taszár (YM 23) 15. 7. 2019. (1 ♀).

Hybomitra muehlfeldi (Brauer, 1880) - Sántos (YM 23) 12. 6. 2019. (4 ♀).

Tabanus autumnalis Linnaeus, 1761 - Csokonyavisonota (XM 80) 12. 8. 2019. (3 ♀), 22. 8. 2019. (1 ♀), 30. 8. 2019. (1 ♀), Darány (XL 99) 12. 8. 2019. (6 ♀), Drávaszentes (XL 89) 2. 8. 2019. (3 ♀), 12. 8. 2019. (2 ♀), 17. 8. 2019. (14 ♀), 23. 8. 2019. (4 ♀), 30. 8. 2019. (6 ♀), Drávatamási (XL 99) 18. 8. 2019. (1 ♀), 30. 8. 2019. (1 ♀), 4. 9. 2019. (2 ♀), Ropoly (YM 12) 23. 7. 2019. (1 ♀), Sántos (YM 23) 12. 6. 2019. (6 ♀), Taszár (YM 23) 15. 7. 2019. (8 ♀), 6. 8. 2019. (1 ♀).

Tabanus bovinus Linnaeus, 1758 - Sántos (YM 23) 12. 6. 2019. (2 ♀).

Tabanus bromius Linnaeus, 1758 - Csokonyavisonota (XM 80) 12. 8. 2019. (11 ♀), 22. 8. 2019. (5 ♀), 30. 8. 2019. (13 ♀), 7. 9. 2019. (3 ♀), Darány (XL 99) 12. 8. 2019. (43 ♀), Drávaszentes (XL 89) 2. 8. 2019. (19 ♀), 12. 8. 2019. (42 ♀), 17. 8. 2019. (109 ♀), 23. 8. 2019. (98 ♀), 30. 8. 2019. (120 ♀), 10. 9. 2019. (16 ♀), Drávatamási (XL 99) 12. 8. 2019. (10 ♀), 18. 8. 2019. (2 ♀), 30. 8. 2019. (9 ♀), Ropoly (YM 12) 23. 7. 2019. (135 ♀), Sántos (YM 23) 12. 6. 2019. (6 ♀), Taszár (YM 23) 15. 7. 2019. (104 ♀), 5. 8. 2019. (60 ♀), 6. 8. 2019. (32 ♀).

Tabanus glaucopis Meigen, 1820 - Ropoly (YM 12) 23. 7. 2019. (17 ♀).

Tabanus maculicornis Zetterstedt, 1842 - Sántos (YM 23) 12. 6. 2019. (8 ♀).

Tabanus paradoxus Jaennicke, 1866 - Ropoly (YM 12) 23. 7. 2019. (1 ♀), Taszár (YM 23) 6. 8. 2019. (3 ♀).

Tabanus sudeticus Zeller, 1842 - Csokonyavisonota (XM 80) 12. 8. 2019. (18 ♀), 22. 8. 2019. (4 ♀), 30. 8. 2019. (10 ♀), 7. 9. 2019. (2 ♀), Darány (XL 99) 12. 8. 2019. (8 ♀), Drávaszentes (XL 89) 2. 8. 2019. (9 ♀), 12. 8. 2019. (38 ♀), 17. 8. 2019. (22 ♀), 23. 8. 2019. (93 ♀), 30. 8. 2019. (60 ♀), 10. 9. 2019. (10 ♀), Drávatamási (XL 99) 12. 8. 2019. (3 ♀), 18. 8. 2019. (1 ♀), 30. 8. 2019. (2 ♀), Ropoly (YM 12) 23. 7. 2019. (71 ♀), Taszár (YM 23) 5. 8. 2019. (3 ♀), 6. 8. 2019. (5 ♀).

Tabanus tergestinus Egger, 1859 - Csokonyavisonota (XM 80) 12. 8. 2019. (8 ♀), 22. 8. 2019. (5 ♀), 30. 8. 2019. (6 ♀), Darány (XL 99) 12. 8. 2019. (5 ♀), Drávaszentes (XL 89) 12. 8. 2019. (2 ♀), 17. 8. 2019. (2 ♀), 23. 8. 2019. (4 ♀), 30. 8. 2019. (3 ♀), Drávatamási (XL 99) 12. 8. 2019. (4 ♀), 18. 8. 2019. (1 ♀), 30. 8. 2019. (6 ♀), Ropoly (YM 12) 23. 7. 2019. (74 ♀), Sántos (YM 23) 12. 6. 2019. (7 ♀), Taszár (YM 23) 15. 7. 2019. (57 ♀), 5. 8. 2019. (8 ♀), 6. 8. 2019. (3 ♀).

Therioptectes gigas (Herbst, 1787) - Sántos (YM 23) 1. 6. 2019. (1 ♀), 12. 6. 2019. (1 ♀).

The most common species were *Haematopota italica*, *H. pluvialis*, *Tabanus autumnalis*, *T. bromius*, *T. sudeticus*, *T. tergestinus* and *Atylotus loewianus*, which were found in 90-100% of the sampling sites. The same species proved to be the most abundant (Table 2). The number of species collected at one sampling site varied between 9 and 14. The most species were collected in Sántos (14) and Ropoly-pusztá (12), and the fewest species (9) were found in Csokonyavisonta, Darány and Drávatamási. Looking at the structure of the horse-fly communities, the high number of eudominant ($D > 10\%$) species is conspicuous. In each sampling location, at least two or more eudominant species were found, which were mostly *H. italica*, *T. bromius* and *T. tergestinus*. At the same time, the proportion of dominant ($D = 5\text{--}10\%$) species was low.

Table 2. The number of collected species
(Abbreviation of sampling sites: Csok. = Csokonyavisonta, Dar. = Darány, Drsz. = Drávaszentes, Drt. = Drávatamási, Rop. = Ropoly, Sán. = Sántos, Tasz. = Taszár)

No.	Species	Csok.	Dar.	Drsz.	Drt.	Rop.	Sán.	Tasz.	Σ
1.	<i>A. loewianus</i>	2	5	107	3	4		15	136
2.	<i>Ch. caecutiens</i>					5			5
3.	<i>Ch. parallelogrammus</i>				2				2
4.	<i>Ch. relictus</i>	1		1	1				3
5.	<i>Ch. viduatus</i>		1	1		2	2		6
6.	<i>H. italica</i>	26	46	41	25	140	21	15	314
7.	<i>H. pluvialis</i>	34	13	87	13	5	4	15	171
8.	<i>H. subcylindrica</i>	1	2	5			2		10
9.	<i>He. pellucens</i>						1	1	2
10.	<i>Hy. bimaculata</i>						1		1
11.	<i>Hy. ciureai</i>			1		2	3	1	7
12.	<i>Hy. muehlfeldi</i>						4		4
13.	<i>T. autumnalis</i>	5	6	29	4	1	6	9	60
14.	<i>T. bovinus</i>						2		2
15.	<i>T. bromius</i>	32	43	404	21	135	6	196	837
16.	<i>T. glaucopsis</i>					17			17
17.	<i>T. maculicornis</i>						8		8
18.	<i>T. paradoxus</i>					1		3	4
19.	<i>T. sudeticus</i>	34	8	232	6	71		8	359
20.	<i>T. tergestinus</i>	19	5	11	11	74	7	68	195
21.	<i>Th. gigas</i>						2		2
	Number of species/site	9	9	11	9	12	13	10	
	Number of specimens/site	154	129	919	86	457	67	331	2145

According to previous literature data (MAJER 1987b), *H. italica* has been found in all European countries, and is also a common but not widespread species in Hungary. *H. pluvialis* is a common species throughout Europe (CHVÁLA et al. 1972). It can be found often in large quantities in most of Hungary. It aggressively attacks humans and animals in humid, pre-rain weather. This is where the Hungarian name of the species comes from. It can also be blamed for the spread of several diseases, and its epidemiological role is significant. *T. autumnalis* is a palearctic species, collected everywhere in Europe. According to our data, it can be collected in large numbers in early spring. Its epidemiological significance is great, it is a proven transmitter of several pathogens. *T. bromius* is

a Palearctic species that occurs everywhere in Europe. It is extremely common in Hungary, sometimes massive. From the point of view of animal health and epidemiology, it is one of the most dangerous horse-fly species and can probably be held responsible for the spread of many diseases in our country as well. *T. sudeticus* can be found throughout Europe and is common in Hungary. One of the largest horse-fly (27 mm) in Hungary and where it is present in large numbers, it can cause serious blood loss to animals. Due to its large size and massive appearance, *T. tergestinus* can be a serious problem in grazing livestock.

These species are among the common and massive species in the European outlook. Faunistic data of *H. italica* were recently published from several sites in Bulgaria (GANEVA 2005, 2006, 2011). *T. tergestinus* is abundant in the Surnena Sredna Gora Mountains and the Chirpan Mountains in Bulgaria (GANEVA 2011, GANEVA & KALMUSHKA 2012), but can also be found in the rest of the country (GANEVA 2005, 2006, 2017; GANEVA & KALMUSHKA 2019). They were caught in significant numbers on the Pannonian plain (KRČMAR 1999a), while a smaller proportion was found in the Drava angle (KRČMAR 2005a). At the same time, it was the second most abundant species in the Mediterranean areas of Croatia (KRČMAR 1999b). *T. autumnalis* is widespread, but nowhere massive in the Balkans (KRČMAR 1999a, GANEVA 2011, GANEVA & KALMUSHKA 2012, 2019). On the other hand, *T. bromius* is one of the determinant elements of the horse-fly communities (GANEVA 2006, 2017). These species occur in the Czech Republic and Slovakia (CHVÁLA 2009, DVOŘÁK 2011), Romania (PARVU 2008), Serbia (KRČMAR 2011, KRČMAR et al. 2002), Bosnia and Herzegovina (KRČMAR et al. 2002), Slovenia (KRČMAR & BOGDANOVIĆ 2001) and several parts of Croatia (KRČMAR 1999a,b, 2005a).

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