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FAUNISTIC NOTES ON HOVERFLIES (DIPTERA: SYRPHIDAE) IN SLOVENIA

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Abstract - In the period of May till September 2003 hoverflies (Diptera, Syrphidae) were collected in several places across Slovenia. 70 species were found with 278 specimens in total. From these species 41 were new to Slovenia. Almost all species occur also in the neighbouring countries.

KEYWORDS: Syrphidae, Diptera, Slovenia, fauna

Izvleček - FAVNISTIČNI PODATKI O MUHAH TREPETA VKAH (DIPTERA: SYRPHIDAE) V SLOVENIJI

V obdobju od maja do septembra leta 2003 smo na več krajih po Sloveniji zbirali muhe trepetavke (Diptera, Syrphidae). Našli smo 70 vrst s skupno 278 primerki. Od teh vrst je 41 za Slovenijo novih. Skoraj vse vrste so zastopane tudi v sosednjih državah.

KLJUČNE BESEDE: Syrphidae, Diptera, Slovenija, favna

Introduction

Many life forms in Slovenia are already studied and monitored like dragonflies (Kotarac, 1997), bees (Gogala 1991, 1994), birds (Geister, 1995) and plants (Jogan, 2001). The hoverflies (Diptera: Syrphidae) however seem to be neglected and not much is known about them in this region.

Hoverflies are known by their mimicry and can occur in many habitats. The larvae are parasitoids or live from rotting wood, as scavengers in nests of bees, or from organic matter in stagnant waters (Chinery 1993). The species can therefore occur almost everywhere.

In neighbouring countries Croatia, Italy and Austria checklists are already known of this family: Austria has 207 species (Wakkie, 2003), Italy has 494 species (Belcari 1995; Mauro & Sommaggio 2002), but in Slovenia there are only 63 species known by literature (Glumac 1972, Vujić, 1986, Vujić 1990, Vujić 1997, Vujić 1999, Vujić et al 1999, Vujić et al 1995-1998, Vujić & Šikoparija 2001, Vujić et al 2001, Vujić & Radoviž 1990, Vujić & Milankov 1990, Šimić & Vujić 1990, Milankova et al 1995).

In Slovenia four biogeographical regions meet each other and the country has variable habitats. This gives many opportunities for a high diversity of hoverflies. This article has the aim to add new records of hoverflies to the checklist of Slovenian species.

Materials and methods

The hoverflies were observed in the period of May till September in 2003. The observations were done all over Slovenia, as shown in Figure 1 and Table 1. Most of the observations, however, were done in the surroundings of Ljubljana, in the Karavanke mountain range and in the direction of the Slovenian coast. Almost all species were collected; only easily recognisable species like *Episyrphus balteatus* were not.

The hoverflies were identified with help of Sack (1932) and van Veen (2002). Species, which could not be identified, were shown to dr. Vujić or checked in the reference collection of the Slovenian Museum for Natural History.

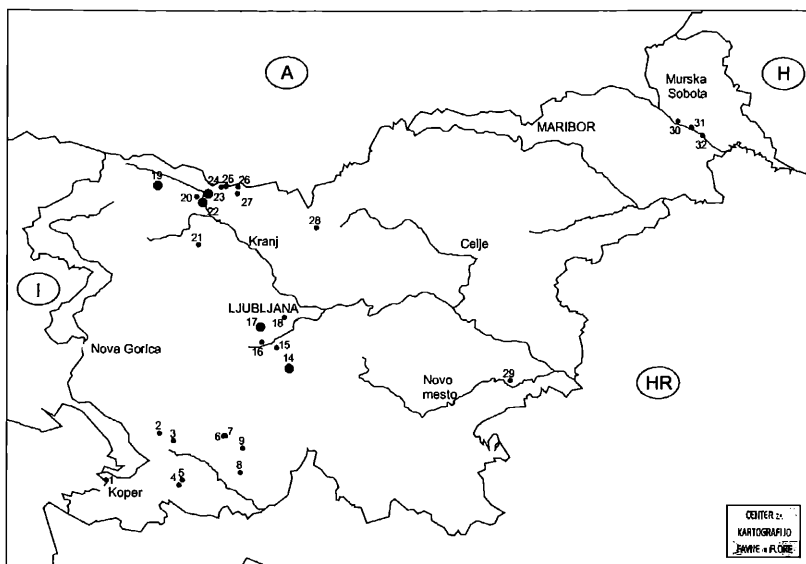


Fig. 1: Map of Slovenia with the places visited in 2003

Tab. 1: The places in Slovenia visited in 2003

ID	Place	Y	X	Habitat
1	Ankaran	402228,5	48416,9	Grassland
2	Brestovica pri Povirju	419136	63721	Bushes, grassland
3	Divača airport (Ležeški Gabrk)	423705,9	61223,9	Pine forest
4	Markovščina	425440,9	47012,2	Dry grassland
5	Slivje	426458,2	48630,6	Forest
6	Petelinjsko jezero	440301,2	62913,5	Flower rich grassland
7	Petelinjsko jezero	439796,1	62737	Forest
8	Volovja reber	445842,8	58881,2	Flower rich grassland
9	Jurišče	445842,8	58881,2	Forest
10	Cerknica	454436,5	68202	Flower rich grassland
11	Cerknica	452741,7	64568,8	Forest
12	Planinsko polje	443341,4	76706,4	Edge grassland forest
13	Velike Bloke	462553,1	71966,4	Flower rich grassland
14	Iški Vintgar	460992,7	84739,9	Forest
15	Jezero (Podpeč)	456738,9	91341,1	Flower rich grassland
16	Bevke spring	451980,2	93103	Grassland
17	Dragomer	451628,9	98048,3	Grassland/forest
18	Ljubljana	459226	101124,9	Grassland
19	Triglav national park	418971,6	143677,3	Grassland
20	Blejski Vintgar	431073,9	139989,1	Forest
21	Jelovica (Ledine)	431619,1	124427,1	Bog/grassland
22	Sava	432970	138160	Forest
23	Žirovnica	434846,2	140020,2	Forest, grassland
24	Karavanke	440390	143280	Forest
25	Karavanke	438813	142936	Forest
26	Ljubelj	444281,4	143121,7	Forest
27	Podljubelj	444079,8	141043,4	Grassland, forest
28	Kamniška bistrica	469524,2	130033,3	Forest
29	Krakovski gozd	532095,9	80712,3	Forest
30	Krog	585874,6	164130,9	Grassland
31	Dokležovje	590485,5	162123,4	Grassland
32	Gornja Bistrica	594072,6	159437	Forest

Results and discussion

During the period of May till September 70 species and 278 specimens were found. They are listed in Table 2. Here the place, sex and other comments are shown for the species.

Species with doubtful identification were not incorporated in the article. Species that could only be determined to the genus level are included to get a good view of the amount of species. Genitals could only identify most of these species. I could not find any appropriate keys. Other species, which were not identified, were collected and some are preserved in the Slovenian museum of Natural History, waiting for correct identification.

The keys I used were sometimes outdated (Sack 1932) or out of the range of the species (Barendregt 2001). However Sack (1932) has good descriptions of species. When the description did not match the specimen I tried another key.

From these 70 species 41 are new to Slovenia. Most of them are known in the neighbouring countries (Soos & Papp 1988; Belcari et al. 1995; Mauro & Sommaggio 2002; Vujić 1986) and were expected to occur in Slovenia. The neighbouring countries have even more species and have less diverse habitats as can be found in Slovenia. Beside this four biogeographical regions meet each other in Slovenia and therefore it is even possible that more species can be found.

Species, which are missing are from the Mediterranean coast and the Alpine region (pers. comm. M. Kotarac). More attention should be paid to these regions to get a good overview of the hoverflies of Slovenia.

Tab. 2: Hoverfly species and their finding places. The taxonomy is after Barendregt (2001).

*species occurring in Slovenia from the database of Centre of Cartography for Flora and fauna (CKFF) and literature

Subfamily	Species	variety	Place, date and sex (u = unknown, ♀ = female, ♂ = male)	Occurrence in neighbouring countries: I: Italy; A: Austria; -: does not occur in I or A; ?: the occurrence not proved
Syrphinae	<i>Epistrophe daphania</i>		Volovja reber, 21 June, 1♀	I

<i>Epistrophe flava</i>		Kamniška Bistrica, 24 August, 1 ♂	I, A
<i>Epistrophe latifasciatus</i>		Markovščina, 25 May, 1 ♂; Planinsko polje, 25 May, 1 ♂;	?
<i>Epistrophe sp.</i>		Dragomer, 18 May, 1 ♀	
<i>Episyrphus balteatus</i>		Ankaran, 6 August, 1 ♀; Cerknica lake, 6 July, 1u; Dragomer, 16 August, 1 ♀, 29 August 1 ♀, 9 August, 3 ♀, 1 ♂; Jelovica bog, 28 July 1 ♂; Kamniška Bistrica, 24 August 1u; Karavanke, 24 July 2u, 26 July 1u; Krakovski gozd, 17 August 4u; Krog (Mura), 25 June 1u; Ljubelj, 7 September 1u; Mura river, 26 July 1u; Brestovica pri Povirju, 8 June 1u; Sava, 28 July 1u; Žirovnica, ; 25 July 1u, 29 July 1u; Slivje, 31 June 1u	I, A
<i>Meliscaeva auricollis*</i>	<i>maculicornis</i>	Karavanke, 24 July 1u	I, A
<i>Meliscaeva cinctella*</i>		Kamniška Bistrica, 24 August 1u; Karavanke, 24 July 1u; Volovja reber, 21 June 1 ♀; Žirovnica, 25 July 1u	I, A
<i>Metasyrphus corollae</i>		Dragomer, 18 May 1 ♀	
<i>Eupeodes corollae*</i>		Kamniška Bistrica, 24 August 1 ♂	I, A
<i>Eupeodes lapponicus</i>		Karavanke, 26 July 1u	I, A
<i>Eupeodes luniger*</i>		Karavanke, 26 July 1 ♂	I, A
<i>Eupeodes sp.</i>		Volovja reber, 21 June 1 ♂	
<i>Scaeva pyrastris*</i>		Karavanke, 26 July 1u 1 ♂; Podljubelj, 7 September 1u	I, A

<i>Sphaerophoria ruepelli</i>		Ljubljansko barje (Dragomer), 1 July 1♀	I
<i>Sphaerophoria scripta*</i>		Ankaran, 6 August 1♂; Bevke, 5 September 2♂; Dragomer, 9 August 1♀, 2♂; Iški vintgar, 4 June 1♂; Petelinjsko jezero, 13 July 2u; Planinsko polje, ♂; 25 May 1♂; Sava, 28 July 1♂; Triglav national park, 23 July 2u; Velike bloke, 14 June 1♂; Volovja reber, 21 June 1♂	I, A
<i>Sphaerophoria sp.</i>		Cerknica lake, 6 July 1♀; Divača, airport, 10 May 2u; Karavanke, 24 July 1u; Planinsko polje, 25 May 3♀; Sava, 28 July 1♂; Triglav national park, 23 July 1u; Slivje, 31 June 1u	
<i>Syrphus ribesii*</i>		Cerknica lake, 6 July 1u; Karavanke, 24 July 2u, 1♀, 26 July 1 u; Krakovski gozd, 17 August 1u; Sava, 28 July 1u; Triglav national park, 23 July 1u; Blejski Vintgar, 27 July 1u	I, A
<i>Syrphus torvus</i>		Dragomer, 12 May 1u	I, A
<i>Xanthogramma peddisiquum</i>		Dragomer, 16 August 1♂; Iški vintgar, 12 July 1u; Jurišče, Pivka, 13 July 1u; Karavanke, 26 July 1u; Planinsko polje, 25 May 1u; Podpeško jezero, 26 May 1u; Žirovnica, 25 July 1u	I, A
<i>Paragus sp.</i>		Bevke, 5 September 1♀	
<i>Baccha elongata*</i>		Dragomer, 5 July 1♂; Kamniška Bistrica, 24 August 1♂; Planinsko polje, 25 May 1♂	I, A
<i>Baccha sp.</i>		Dragomer, 9 August 1♀	

	<i>Chrysotoxum arcuatum</i>		Jelovica, 28 July 1 ♀; Kamniška Bistrica, 24 August 1u	A
	<i>Chrysotoxum bicinctum</i>		Cerknica lake, 6 July 1u; Dragomer, 12 June 5u, 5 July 1 ♂; Karavanke, 26 July 1u; Brestovica pri Povirju, 8 June 1u; Blejski Vintgar, 27 July 1u	I, A
	<i>Chrysotoxum vernale</i>		Podpeško jezero, 10 August 1 ♀; 26 May 1u	I
	<i>Chrysotoxum octomaculatum</i>		Ljubljana, 15 September 1 ♀	I, A
	<i>Melanostoma mellinum*</i>		Iški vintgar, 12 July 1 ♀; Karavanke, 24 July 1u; Žirovnica, 29 July 1u	I, A
	<i>Platycheirus clypeatus*</i>		Dragomer, 16 August 1 ♀	I, A
	<i>Platycheirus transfugus</i>		Planinsko polje, 25 May 1 ♀	
	<i>Heringia maculipennis</i> (syn. <i>Pipizella maculipennis</i>)		Divača airport, 7 June 1 ♂	Cr
	<i>Heringia</i> sp.		Sava, 23 May 1u; Žirovnica, 29 July 2u	I, A
	<i>Pipiza noctinea</i>		Dragomer, 16 August 1 ♀	
	<i>Pipizella</i> sp.		Planinsko polje, 25 May 1 ♀; Volovja reber, 21 June 1 ♀ 1 ♂	
Milesiinae	<i>Cheilosia canicularis*</i>		Kamniška Bistrica, 24 August 2 ♂	I, A
	<i>Cheilosia carbonaria*</i>		Planinsko polje, 25 May 1 ♀	I, A
	<i>Cheilosia chrysocoma*</i>		Karavanke, 24 July 1u	I, A
	<i>Cheilosia longula*</i>		Dragomer, 16 August 1 ♂	I, A
	<i>Cheilosia pagana*</i>		Karavanke, 26 July 1 ♂	I, A

	<i>Cheilisia scutellata*</i>		Dragomer, 16 August 1♂; Karavanke, 26 July 2♀	I
	<i>Ferdinanda ruficornis</i>		Dragomer, 12 June 1u	I
	<i>Rhingia rostrata</i>		Slivje, 31 June 1u	I
	<i>Volucella inanis</i>		Dragomer, 16 August 1♀; Kamniška Bistrica, 24 August 1u; Karavanke, 26 July 2♀; Sava, 28 July 1♀	I, A
	<i>Volucella pelluscens</i>		Dragomer, 8 June 1u, 12 June 1u, 16 August 1♂, 29 August 1♂; Iški vintgar 2u, 12 July; Jurišče, Pivka, 13 July 1u; Karavanke, 24 July 1u, 26 July 4u; Triglav national park, 23 July 2u; Blejski vintgar, 27 July 1u	I, A
	<i>Volucella bombylans</i>	<i>plumata</i>	Jurišče, Pivka, 13 July 1u; Slivje, 31 June 1u	I, A
	<i>Volucella bombylans</i>	<i>bombylans</i>	Slivje, 31 June 1u	I, A
	<i>Chrysogaster solstitialis*</i>		Dragomer, 16 August 1♀	I, A
	<i>Neoscia dispar</i>		Dragomer, 9 August 2♀	I, A
	<i>Sphegina clunipes</i>		Dragomer, 9 August 2♀	I, A
	<i>Eumerus strigatus</i>		Ljubljana, 23 August 1u	I, A
	<i>Microdon analis</i>		Divača airport (Ležeški Gabrk), 7 June 6u 1♂	I, A
	<i>Spilomyia manicata</i>		Podpeč jezero, 10 August 1♀	I
	<i>Syritta pipiens*</i>		Cerknica lake, 6 July 5u; Dragomer, 18 May 3♂, 16 August 1♀, 29 August 1♂; Podpeško jezero, 24 May 1u; Žirovnica, 25 July 3u, 29 July 1u	I, A
	<i>Temnostoma bombylans*</i>		Dragomer, 12 July 1u	A

	<i>Xylota segnis</i> *		Dragomer, 18 May 1♀; Jurišče, Pivka, 13 July 1u; Kamniška Bistrica, 24 August 1u; Ljubelj, 7 September 1♀	I, A
	<i>Xylota sylvarum</i> *		Kamniška Bistrica, 24 August 1u	I, A
	<i>Merodon aeneus</i>		Cerknica lake, 6 July 1u; Planinsko polje, 25 May 1♂	I
	<i>Merodon cinereus</i>		Karavanke, 24 July 1u	I, A
	<i>Merodon constans</i>		Krog (Mura), 25 June 1♀	I
	<i>Merodon rufus</i>		Brestovica pri Povirju, 8 June 1♂	I
	<i>Merodon spicata</i>		Petelinjsko jezero, 13 July 1♂	
	<i>Merodon pinipes</i>		Brestovica pri Povirju, 8 June 2♂; Volovja reber, 21 June 1♀	
Eristalinae	<i>Eristalinus sepulchralis</i> *		Dokležovje (Mura), 26 June 1♂; Krog (Mura), 25 June 1u; Ljubljansko barje (Dragomer), 1 July 2♀	I, A
	<i>Eristalis arbustorum</i> *		Dragomer, 16 August 2u, 29 August 1♂; Kamniška Bistrica, 24 August 1u; Planinsko polje, 1 July 1u; Petelinjsko jezero, 13 July 3u; Volovja reber, 21 June 1♀	I, A
	<i>Eristalis pertinax</i>		Cerknica lake, 6 July 1♀ 1u; Dragomer, 16 August 1u; Kamniška Bistrica, 24 August 1u; Karavanke, 26 July 1u; Petelinjsko jezero, 13 July 2u; Triglav national park, 23 July 1u	I, A
	<i>Eristalis pratorum</i>		Dragomer, 16 August 1♂	I, A
	<i>Eristalis sp.</i>		Triglav national park, 23 July 1u	
	<i>Eristalis tenax</i> *		Cerknica lake, 6 July 3u; Dokležovje (Mura), 26 June 1♂; Dragomer, 7 September 1u,	I, A

		29 August 1u 1♀, 9 August 1♂; Kamniška Bistrica, 24 August 4u; Karavanke, 24 July 1u 1♂, 26 July 4u; Krakovski gozd, 17 August 1u; Ljubelj, 7 September 2♂ 1♀; Ljubljansko Barje, 1 July 1♀; Petelinjsko jezero, 13 July 4u; Sava, 28 July 1u; Triglav national park, 23 July 3u; Blejski vintgar, 27 July 1u; Žirovnica, 25 July 1u	
	<i>Helophilus pendulus</i>	Dragomer, 15 July 1u	I, A
	<i>Helophilus hybridus</i>	Dragomer, 15 July, 1♀	-
	<i>Helophilus sp.</i>	Ljubljana, 15 May 2u	
	<i>Parhelophilus versicolor</i>	Krog (Mura), 26 June, 1♀	I
	<i>Myathropa florea</i> *	Cerknica lake, 6 July 1u; Dragomer, 16 August 1u; Karavanke, 26 July 1u; Triglav national park, 23 July 5u	I, A

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References

- Barendregt, A.**, 2001: Zweefvliegental, geheel herziene 9e druk. Jeugdbondsuitgeverij, Utrecht. 96 pp.
- Belcari, A., Daccordi, M., Kozanek, M., Munari, L., Raspi, A., and Rivosecchi, L.**, 1995: Checklist delle specie della fauna italiana, chapter Diptera Platypozoida, Syrphoidea, pages 1-25. Number 70. Calderini, Bologna

- Chinery, M.**, 1993: Collins field guide insects of Britain and Northern Europe. Harper Collins publishers, London
- Geister, I.**, 1995: Ornitološki Atlas Slovenije. DZS, Ljubljana
- Gogala, A.**, 1991: Contribution to the Knowledge of the Bee Fauna of Slovenia (Hymenoptera: Apidae). *Scopolia* 25: 1-33.
- Gogala, A.**, 1994: Contribution to the Knowledge of the Bee Fauna of Slovenia II (Hymenoptera: Apidae). *Scopolia*, 31: 1-40.
- Glumac, Š.**, 1972: Catalogus Faunae Jugoslaviae. III/6. Syrphoidea. Slovenska akademija znanosti in umetnosti v Ljubljani: 1-72.
- Jogan, N.**, 2001: Materials for the Atlas of Flora of Slovenia. Center za Kartografijo favne in flore, Ljubljana, Slovenia.
- Kotarac, M.**, 1997: Atlas of the dragonflies (Odonata) of Slovenia, with red data list. Center za Kartografijo favne in flore, Ljubljana, Slovenia.
- Mauro, Sommaggio**, 2002: Syrphidae checklist upgrade. *Bollettino Società Entomologica Italiana*, 84-90.
- Milankova, V., Vujić, A., Šimić, S.**, 1995: Species of Xylotini (Diptera: Syrphidae) from the Yugoslav region. *Entomologist's Gazette* 46: 209-216.
- Sack P.**, 1932: Syrphidae, In: Lindner E. Fliegen der Palaearktische Region, Teil 31. E. Nagele, Stuttgart.
- Soos, A., L. Papp** (eds.), 1988: Catalogue of Palearctic Diptera, Vol. 8, 11-230. Budapest.
- Šimić, S., Vujić, A.**, 1990: Vrste roda *Eristalis* Latreille, 1804 (Diptera, Syrphidae) iz zbirke instituta za biologiju u Novom Sadu. *Glasnik prirodnjačkog muzeja u Beogradu B* 45: 115-126.
- Van Veen, M.**, 2001: http://home.hccnet.nl/mp.van.veen/hf_index.html
- Vujić A.**, 1986: Genus *Cheilosia* Meigen and related genera (Diptera:Syrphidae) on the Balkan Peninsula. Department of natural sciences, 1-201.
- Vujić A., Milankov, V.**, 1990: Taksonomski status vrsta roda *Criorrhina* Meigen 1822 (Diptera: Syrphidae) zabeleženih u Jugoslaviji. *Glasnik prirodnjačkog muzeja u Beogradu B* 45: 105-114.
- Vujić, A., Radović, D.**, 1990: Vrste roda *Brachypalpus* Macquart 1834 (Diptera Syrphidae) u Jugoslaviji. *Glasnik prirodnjačkog muzeja u Beogradu B* 45: 95-104.
- Vujić, A., Šikoparija, B.**, 2001: Species related to *Cheilosia canicularis* (Diptera: Syrphidae) on the Balkan peninsula. *Acta entomologica serbica* 5 (1/2): 107-120.
- Vujić, A., Šimić, S.**, 1995-1998: Genus *Eumerus* Meigen 1822 (Diptera: Syrphidae) in area of former Yugoslavia. *Glasnik prirodnjačkog muzeja u Beogradu B* 29-50: 174-189.
- Vujić, A.**, 1990: Genera *Neoascia* Williston 1886 and *Sphegina* Meigen 1822 (Diptera: Syrphidae) in Yugoslavia and description of species *Sphegina sublatifrons* sp. nova. *Glasnik prirodnjačkog muzeja u Beogradu B* 45: 77-93.

- Vujić, A.**, 1997: The genus *Pipizella* (Diptera, Syrphidae) on the Balkan Peninsula and description of *Pipizella zloti* sp.n. *Dipterists digest* 4, 51-60.
- Vujić, A.**, 1999: The tribe of Chrysogasterini (Diptera: Syrphidae) in the Balkan Peninsula, with the description of three new cryptic species. *Studia dipterologica* 6 (2): 405-423.
- Vujić, A., Šimić S., Radenković S.**, 1999: Mediterranean species related to *Paragus hermonensis* Kaplan, 1981, with the description of *Paragus gorgus* spec. nov. (Diptera, Syrphidae). *Volucella* 4 (1/2): 29 – 44
- Vujić, A., Šimić, S., Radenković, S.**, 2001: Endangered species of hoverflies (Diptera: Syrphidae) on the Balkan peninsula. *Acta entomologica serbica* 5 (1/2): 93-105.
- Wakkie, W.**, 2003: <http://www.syrphidae.com/checklist.php?country=AT>

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