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A CONTRIBUTION TO THE KNOWLEDGE
OF SYRPHIDAE (Diptera) IN YUGOSLAVIA

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Received June 26, 1984

Abstract

K u l a , E.: A contribution to the knowledge of Syrphidae (Diptera) in Yugoslavia. (In English, summary in Czech) "Acta Universitatis Agriculturae (Brno), Series C (Facultas Silviculturae)", 54, 1985, 1 - 2: 203 - 223.

1400 imagoes of the Syrphidae family including 114 species and 42 genera of this family were caught on 15 sites on the territory of Serbia, Vojvodina, Bosnia and Herzegovina between April and June 1983. We found out 9 new species for Yugoslavia, 14 species for Serbia, 3 species for Vojvodina and 19 species for Bosnia and Hercegovina.

The study of fauna in different countries is an open and continuous process enabling a detailed knowledge of animals and it detects ecological dependence of the occurrence of animal species and affects their dispersal.

The climatic conditions of Yugoslavia with the Mediterranean, Pontic, Central European and Alpine climate types

influence the whole fauna of the country, the species represented and their distribution. GLUMAC (1972) observed that the Mediterranean species of Syrphid were conspicuously distributed towards Yugoslavia's northern border. A considerable contribution to the knowledge of the family Syrphidae in different republics of Yugoslavia was made by GLUMAC. Based on the collections of The Serbian Museum in Belgrade as well as his own collections GLUMAC (1955) described 179 Syrphid species in Serbia while only 23 species in this part of Yugoslavia had already been described earlier. 45 species had not been enlisted in neighbouring countries (Bulgaria, Bosna and Dalmatia) either. However, some species known in The Mediterranean and Central European zones were found in Serbia as well.

In 1955 GLUMAC published the information on Syrphid fauna of Monte Negro on the basis of studying Syrphid flies collected at the Biological Institute in Sarajevo after World War I. The collections originated from the mountain regions and 65 species and 25 genera of the Syrphid family were determined (GLUMAC 1956).

GLUMAC (1959) carried out a very detailed analysis of the Syrphid fauna on the site Fruška Gora where he collected 169 species; 35 species and subspecies were new for the territory of Serbia. GLUMAC (1959) presented 242 Syrphid species for the rich fauna of Yugoslavia of which 99 species were aphidophagous.

At the time when GLUMAC (1968) studied the occurrence of Syrphids in Macedonia already 231 species were known in Serbia, 208 species in Croatia, 143 in Bosna although only 32 species were enlisted in Macedonia. In Macedonia the author described 188 species and 51 genera.

GLUMAC (1972) enlisted 67 genera with 326 species and 57 subspecies of the Syrphid family in his Catalogue of Syrphidae in Yugoslavia.

The following authors contributed to the knowledge of Syrphid fauna in Yugoslavia: SCHINER (1857, 1862), STROBL

(1898, 1900, 1904), LANGHOFFER (1917-1923), ŽIVOJINOVIĆ (1950), COE (1956-1960), LECLERQ (1961).

The aim of this paper was to contribute to the knowledge of Syrphid fauna in Serbia, Vojvodina, Bosna and Hercegovina on the basis of collecting imagoes of the Syrphid family (April-June 1983).

Material and Methods

The collection of Syrphids was carried out by skidding method and by individual catching of imagoes by means of entomological net.

Four stable, permanently visited sites in Belgrade and its surroundings were chosen (The Arboretum of the Faculty of Forestry, Topčider Park, Košutnjak, Avala). Syrphid imagoes were also caught on eleven other sites, which were visited once in the course of the given period. Seven of these sites were located in Serbia (apart from four above-mentioned they included: Oplenac, Debeli Lug, Tara planina). Six sites were located in Vojvodina (Fruška Gora, Ristovača, Karavukovo, Devojački Bunar, Šušara, Dubovac) and two sites in Bosna and Hercegovina (Bjelašnica, Bjelo Pole) (Fig. 1).

On sites at Topčider Park, Arboretum, Debeli Lug, Tara planina, Bjelašnica, Šušara, Dubovac, Bjelo Pole the catching of imagoes was concentrated on forest-free areas covered by herbal plants, other collections were performed in forest stands. Košutnjak, Oplenac, Ristovača, Karavukovo, Fruška Gora, Devojački Bunar were sites with prevailing oak, European hornbeam and other deciduous trees; spruce was predominantly represented on sites at Bjelo Pole and Avala.

The frequency of visits and the time of collections was shown in the excursion calendar (Tab. 1).

Totally 1400 imagoes of Syrphid were caught (737 females, 663 males) for the determination of which the keys by SACK (1932), COE (1953), DUŠEK and LÁSKA (1967) were used.



Fig. The map of Yugoslavia with Denoted Sites of Catching Syrphidae

Results

a) Sites in Territory of Serbia:

The richest collections originated from Avala (397 imagoes), of which 62 species of Syrphids were determined. The species S. ribesii (L.), D. tricinctus (Fall.), E. balteatus (Deg.), P. punctulatus (Verr.), P. scutatus (Meig.), S. pipiens (L.), Ch. cautum (Harr.) were significantly represented.

Tab. 1: Excursion Calendar

Site	The period	Excursion days
Arboretum	15.4. - 24.5.	15.4., 18.4., 19.4., 21.4., 27.4., 28.4., 29.4., 2.5., 5.5., 10.5., 11.5., 16.5., 23.5., 24.5.
Košutňak	17.4. - 22.5.	17.4., 19.4., 21.4., 23.4., 24.4., 30.4., 4.5., 7.5., 11.5., 14.5., 22.5.
Topčiderský park	30.4. - 25.5.	30.4., 11.5., 15.5., 25.5.
Avala	1.5. - 30.5.	1.5., 6.5., 12.5., 20.5., 30.5.
Ristovača		25.4., 26.4.
Karavukovo		26.4.
Fruska Gora		13.5.
Devoječki Bunar		8.5.
Šušara		17.5.
Dubovac		28.5.
Oplenac		19.5.
Debeli Lug		27.5.
Tara planina		24.6.
Bjelašnica		4.6.
Bjelo Pole		4.6., 5.6.

281 imagoes belonging to 52 species of the Syrphidae family were caught on the site at Košutňak. Syrphus vitripennis Meig., S. ribesii (L.) and E. eligans (Harr.) were the species most frequently caught.

The Arboretum of The Faculty of Forestry covered a relatively small area in which a number of various tree and shrub species were concentrated. Thirty-seven Syrphid species were found among the species caught here. Fewer species were represented on the site at Topčider Park (21 species) and Oplenak (15 species). 30 Syrphid species were found after a single excursion at Debeli Lug.

Total number of 1096 imagoes of Syrphid belonging to 41 genera and 94 species were caught in Serbia. The new species of this territory were the following ones: M. lapponicus (Zett.), M. annulipes (Zett.), P. punctulatus (Verr.), S. dignota (Rond.), P. angustatus (Zett.), M. triangulifera (Zett.), M. lasiophthalma (Zett.), Ch. imperfecta Beck., Ch. Loewi Beck., Ch. chloris (Meig.), M. devius (L.), N. latitarsis (Egger), R. rostrata (L.), Ch. melanopa (Zett.).

b) Sites in Territory of Vojvodina:

Each site was visited only once and so the number of imagoes caught as well as the number of species was lower. 13 species were caught at Fruška Gora, 28 species at Ristovača, 8 at Karavukovo. The sites at Devojački Bunar, Šušara and Dubovac belong to Deliblatski Sand where 21 species of Syrphid were collected. The new species in the territory of Vojvodina were: P. clypeatus (Meig.), S. dignota (Rond.), Ch. honesta Rond.

c) Sites in Territory of Bosna and Hercegovina:

Both sites are part of the mountain range Igman near Sarajevo; they differ in altitude - Bjelašnica 2067 m, Bjelo Pole 1500 m.

Eleven species of Syrphidae were caught on the peak of Bjelašnica and 36 species of Syrphidae were collected at Bjelo Pole. Altogether 19 species of Syrphidae were new for the territory of Bosna and Hercegovina: S. torvus Ost. Sack., D. lunulatus (Meig.), M. lapponicus (Meig.), M. corollae (Fabr.), P. annulatus (Zett.), P. lineola (Zett.), P. punctulatus (Verr.), P. vittiger (Zett.), S. menthastrii (L.), P. ovalis Becker, P. melanopsis Loew., M. lasiophthalma (Zett.), M. barbifrons (Fall.), Ch. imperfecta Beck., Ch. honesta Rond., Ch. montana Egger, M. mutabilis (L.), N. latitarsis (Egger), P. carbonaria Meig., M. latilunulatus (Coll.).

We collected the material of 1400 Syrphid imagoes on above-mentioned sites (737 females, 663 males), which includes

42 genera and 114 species of Syrphidae. Nine species were new in the territory of Yugoslavia: P. punctulatus (Verr.), S. dignota (Rond.), P. ovalis Becker, P. melanopsis Loew., P. angustatus (Zett.), Ch. imperfecta Beck., Ch. honesta Rond., P. carbonaria Meig., M. latilunulatus (Coll.).

Metasyrphus lapponicus (Meig.) was found on the site Košutňak (May 4, 2♂♂), Avala (May 6, 2♀♀; May 30, 1♂), Bjelo Pole (June 5, 1♂ and 7♀♀). SACK (1932) presented it in the territory of central and northern Europe, Siberia and North America; it occurs in June. It belongs to aphidophagous species.

Metasyrphus latilunulatus (Coll.) - the only female imago originated from Bjelo Pole (June 5). It belongs to aphidophagous species.

Parasyrphus punctulatus (Verr.) is spread in western Europe (May - July) (SACK 1932). Imagoes of this species originated from the collection on sites: Avala (May 1, 8♂♂; May 6, 7♂♂; May 12, 7♀♀; May 30, 3♂♂), Bjelašnica (June 4, 1♀), Bjelo Pole (June 5, 2♀♀). It belongs to aphidophagous species.

Scaeva dignota (Rond.) belongs to aphidophagous species widely occurring in central and northern Europe. This species was observed on sites: Košutňak (April 30, 1♂; May 7, 1♀; May 14, 1♂), Avala (May 6, 2♀♀; May 20, 2♂♂ and 2♀♀; May 30, 1♂ and 1♀), Dubovac (May 28, 1♀).

Platycheirus ovalis Becker - the only one female was caught on the site Bjelo Pole (June 5); this aphidophagous species occurs (SACK 1932) and Czechoslovakia only.

Platycheirus melanopsis Loew. was caught on the peak of Bjelašnica (June 5, 1♂ and 2♀♀). It is the aphidophagous species which occurs mostly in mountain regions of central Europe in May and July.

Platycheirus angustatus (Zett.) originated from the collections on the sites: Košutňak (May 7, 1♂), Avala (May 1,

1♀) and Debeli Lug (May 27, 1♀). It is known as aphidophagous species in central and northern Europe.

Cheilosisia honesta Rond. was described in central Europe and in The Alps, two imagoes of our collection belonged to sites Šušara (May 17, 1♂) and Bjelašnica (June 4, 1♀).

Cheilosisia imperfecta Beck. is known from Italy (SACK 1932). Its occurrence was recorded on the sites in The Arboretum (April 18, 1♀) and Bjelo Pole (June 5, 1♀).

Cheilosisia melanopa (Zett.) two male imagoes were caught at Košutnjak (May 4). It occurs in central and northern Europe and in the Alps from April to July (SACK 1932).

Pipiza carbonaria Meig. originated from collections carried out on sites Bjelašnica (June 4, 1♀) and Bjelo Pole (June 5, 1♀). In Europe it occurs from June to August.

Discussion

Fruška Gora - the hilly country in the southern part of Pannonia lowland below the altitude of 600 m - was studied by GLUMAC (1959) from the viewpoint of Syrphidae occurrence. The author collected 169 species of Syrphidae after observation lasting two years. Our collections did not bring any further knowledge about the site mentioned.

The site Deliblatski Sand has a special position and it is called "European Sahara". It covers the area of 27 477 ha and the attention has been devoted to its fauna and flora since 1818. Our three sites (Devojački Bunar, Šušara, Dubovac) are parts of Deliblatski Sand. The data on Syrphidae for this area were given by GLUMAC (1955). Based on our collections we can present the following new species for this site: S. ribesii (L.), (Devojački Bunar); Dasysyrphus venustus (Meig.), (D. Bunar); Metasyrphus latifasciatus (Macq.), (Šušara); Metasyrphus corollae (Fabr.), (Dubovac); Scaeva dignota (Rond.), (Dubovac); Chrysotoxum cautum (Harr.), (Šušara).

GLUMAC (1955) published the results of his Syrphid collection from the territory of Serbia. Some of our sites were identical with Glumac's sites (Košutnak, Avala, Topčider Park, Tara). On the basis of our collections made in 1983 the present-day knowledge of single sites can be widened.

The species which have not been caught on the sites so far:

a) Košutnak - Syrphus torvus (Ost. Sack), Dasysyrphus tricinctus (Fall.), Metasyrphus latifasciatus (Macq.), Metasyrphus lapponicus (Meig.), Episyrphus auricollis (Meig.), E. cinctellus (Zett.), Scaeva dignota (Rond.), Platycheirus scutatus (Meig.), P. albimanus (Fabr.), P. angustatus (Zett.), Epistrophe nitidicollis (Meig.), E. ochrostoma (Zett.), Volucella inflata (Fabr.), Neoscia podagrica (Fabr.), Cheiliosia variabilis (Panz.), Ch. Loewi Becker, Eumerus strigatus (Fall.), Eristalis horticola (Deg.), Ferdinandea cuprea (Scop.), Brachypalpus valgus (Panz.).

b) Topčiderski Park - Metasyrphus latifasciatus (Macq.), Scaeva selenitica (Meig.), Ceriodes conopoides (L.), Neoscia podagrica (Fabr.), Cheiliosia nigripes (Meig.), Orthoneura frontalis (Loew.).

c) Avala - Syrphus torvus Ost. Sack, Dasysyrphus venustus (Meig.), D. albostrigatus (Fall.), D. tricinctus (Fall.), Megasyrphus andulipes (Zett.), Metasyrphus lapponicus (Meig.), Episyrphus auricollis (Meig.), Parasyrphus punctulatus (Verr.), Scaeva dignota (Rond.), Baccha elongata (Fabr.), Didea fasciata (Macq.), Platycheirus scutatus (Meig.), P. albimanus (Fabr.), P. angustatus (Zett.), Epistrophe grossulariae (Meig.), E. nitidicollis (Meig.), E. ochrostoma (Zett.), Meligramma triangulifera (Zett.), Melangyna umbelatarum (Fabr.), Xanthogramma laetum (Fabr.), Volucella bombylans (L.), Neoscia podagrica (Fabr.), Chrysotoxum cautum (Harr.), Cheiliosia latifacies Loew., Ch. variabilis (Panz.), Eumerus strigatus (Fall.), Merodon clavipes (Fabr.), M. armipes (Rond.), Microdon mutabilis (L.), M. devius (L.), Eristalis pertinax (Scop.), Ferdinandea cuprea (Scop.), Pipiza noctiluca (L.), P. quadrimaculata (Panz.), P. bimaculata (Meig.), Paragus albifrons (Fall.).

Tab. 2: Survey of Syrphidae species (Diptera) caught in the territory of Yugoslavia (April - June 1983)

S i t e S p e c i e s	New species in the territory	S e r b i a									
		B ě l e h r a d						A v a l a O p l e - n a c			
		A r b o - r e t u m		K o š u t - n a k		T o p č . p a r k		A v a l a		O p l e - n a c	
♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀		
Syrphus ribesii(L.)		6	8	14	8	2	2	19	9	-	2
Syrphus torvus Ost. Sack	BH(+)	-	-	1	-	-	-	1	2	-	-
Syrphus vitripennis Meig.		12	5	26	30	-	-	3	3	-	-
Dasysyrphus lunulatus(Meig.)	BH	-	-	-	-	-	-	-	-	-	-
Dasysyrphus venustus(Meig.)	BH	-	-	-	-	-	-	1	1	-	-
Dasysyrphus albostrigatus(Fall.)		3	-	1	-	-	-	2	8	-	-
Dasysyrphus tricinctus(Fall.)		1	-	5	3	-	-	15	7	-	-
Megasyrphus annulipes(Zett.)	Srb	-	-	-	-	-	-	-	4	-	-
Metasyrphus luniger(Meig.)		-	-	3	4	-	-	1	4	-	-
Metasyrphus latifasciatus(Macq.)		2	-	2	1	-	2	-	-	-	-
Metasyrphus lapponicus(Meig.)	Srb,BH	-	-	2	-	-	-	1	2	-	-
Metasyrphus corollae(Fabr.)		-	3	-	-	2	2	2	-	-	-
Metasyrphus latilunulatus(Coll.)	Yu	-	-	-	-	-	-	-	-	-	-
Episyrphus balteatus(Deg.)		3	10	9	7	-	2	7	11	-	-
Episyrphus auricollis(Meig.)		-	-	-	1	-	-	1	7	-	-
Episyrphus cinctellus(Zett.)		-	-	1	-	-	-	-	-	-	-
Parasyrphus annulatus(Zett.)	BH	-	-	-	-	-	-	-	-	-	-
Parasyrphus lineola(Zett.)	BH	-	-	-	-	-	-	-	-	-	-
Parasyrphus punctulatus(Verr.)	Yu	-	-	-	-	-	-	25	-	-	-
Parasyrphus vittiger(Zett.)	BH	-	-	-	-	-	-	-	-	-	-
Scaeva selenitica(Meig.)		-	-	-	1	1	-	3	7	-	-
Scaeva pyrastris(L.)		-	-	-	-	-	-	-	2	-	-
Scaeva dignota(Rond.)	Yu	-	-	2	1	-	-	4	5	-	-
Melanostoma mellinum(L.)		1	1	1	1	1	-	-	-	-	-
Melanostoma scalare(Fabr.)		1	1	4	-	-	-	-	15	-	-
Xanthandrus comtus(Harris)		-	-	-	1	-	-	-	-	-	-
Baccha elongata(Fabr.)		-	-	-	-	-	-	1	-	-	-
Sphaerophoria scripta(L.)		6	7	8	4	3	6	1	-	-	1
Sphaerophoria taeniata(Meig.)		-	-	-	-	-	-	1	-	-	-
Sphaerophoria menthastris(L.)	BH	-	-	-	-	-	-	-	-	-	-

pokračování tab. č.2 S i t e S p e c i e s	New species in the terri- tory	S e r b i a											
		B ě l e h r a d						Avala Ople- nac					
		Arbo- retum		Košut- ňak		Topč. park		Avala		Ople- nac			
♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀				
1 Fagisyrphus cinctus (Fall.)		-	1	-	-	-	-	-	-	-	-	-	-
2 Didea fasciata Macq.		-	-	-	-	-	-	1	-	-	-	-	-
3 Platycheirus clypeatus (Weig.)	Voj	-	-	-	-	-	-	-	-	-	-	-	-
4 Platycheirus scutatus (Meig.)		1	1	-	1	-	-	10	10	-	-	-	-
5 Platycheirus manicatus (Weig.)		-	-	-	-	-	-	-	-	-	-	-	-
6 Platycheirus albimanus (Fabr.)		-	1	1	4	-	-	3	7	-	-	-	-
7 Platycheirus ovalis Becker	Yu	-	-	-	-	-	-	-	-	-	-	-	-
8 Platycheirus melanopsis Loew.	Yu	-	-	-	-	-	-	-	-	-	-	-	-
9 Platycheirus angustatus (Zett.)	Yu	-	-	-	1	-	-	-	1	-	-	-	-
10 Epistrophe grossulariae (Meig.)		-	-	-	-	-	-	2	1	-	-	-	-
11 Epistrophe nitidicollis (Meig.)		-	-	1	1	-	4	10	2	-	-	-	-
12 Epistrophe ochrestoma (Zett.)		-	-	1	-	-	2	-	4	-	-	-	-
13 Epistrophe eligans (Harr.)		2	1	27	3	-	-	3	1	-	-	-	-
14 Meligramma triangulifera (Zett.)	Srb	-	-	-	-	-	-	-	1	-	-	-	-
15 Melangyna umbellatarum (Fabr.)		-	-	-	-	-	-	4	1	-	-	-	-
16 Melangyna lasiophthalma (Zett.)	Srb, BH	1	-	-	-	-	-	-	-	-	-	-	-
17 Melangyna barbifrons (Fall.)	BH	-	-	-	-	-	-	-	-	-	-	-	-
18 Xanthogramma laetum (Fabr.)		-	-	-	-	-	-	-	2	-	-	-	-
19 Xanthogramma pedisequum (Harr.)		-	1	-	2	-	1	-	6	-	-	-	-
20 Cerioides conopoides (L.)		-	-	-	-	-	2	-	3	-	-	-	-
21 Volucella zonaria (Poda)		1	-	-	-	-	-	1	1	-	-	-	-
22 Volucella pellucens (L.)		3	2	3	-	-	-	-	-	1	-	-	-
23 Volucella bombylans (L.)		1	2	-	-	-	-	1	2	-	-	-	-
24 Volucella inflata (Fabr.)		-	-	3	-	-	-	-	-	-	-	-	-
25 Xylota segnis (L.)		-	-	1	-	-	-	-	-	-	-	-	-
26 Xylota ignava (Fanzler)		-	-	-	-	-	-	-	-	-	-	-	-
27 Syrretta pipiens (L.)		11	3	3	4	8	4	7	11	1	2	-	-
28 Myiatropa florea (L.)		8	3	11	3	2	-	4	8	-	-	-	-
29 Neoscia podagrica (Fabr.)		-	5	-	1	-	1	-	1	-	-	-	-
30 Neoscia dispar (Meig.)		-	1	-	-	-	-	-	-	-	-	1	-
31 Neoscia floralis (Meig.)		-	-	-	-	-	-	-	-	-	-	-	-
32 Chrysotoxum cautum (Harr.)		7	2	4	1	-	-	14	15	-	2	-	-
33 Chrysotoxum festivum (L.)		-	-	4	3	-	-	1	-	-	-	-	-
34 Helophilus trivittatus (Fabr.)		-	-	-	-	-	-	-	-	-	-	-	-
35 Helophilus pendulus (L.)		-	-	-	3	-	-	-	1	-	-	-	-
36 Helophilus frutetorum (Fabr.)		-	-	-	-	-	-	-	-	-	-	-	-
37 Eumerus strigatus (Fall.)		1	-	1	-	-	-	1	2	-	-	-	-

Debeli Tara Lug				V o j v o d i n a												B o s n a Hercegovina			
				Risto- vača		Kara- vukovo		Fruška Gora		Devoj. Bunar		Šušara		Dubo- vac		Belaš- nica		Bjelo Pole	
♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀		
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-		
-	-	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	-		
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-	-	-	-	1	-	1	-	-	3	1	-	-	-	-	-	-	1		
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-	-	-	-	2	-	-	-	-	2	-	1	-	-	-	-	-	-		
-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
-	-	-	-	2	2	-	1	-	-	-	-	-	-	-	-	-	-		
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
-	-	1	1	7	2	1	-	-	-	2	-	1	1	-	-	1	1		
1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
-	-	-	-	1	-	2	-	-	1	4	2	-	-	-	-	-	-		
1	-	-	1	-	-	-	-	6	1	4	-	1	-	-	1	-	2		
-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-		
-	-	-	-	-	7	-	-	-	4	-	-	-	-	-	-	-	-		
-	1	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

pokračování tab. č. 2

S i t e S p e c i e s	New species in the terri- tory	S e r b i a										
		B ě l e h r a d						Avala		Ople- nac		
		Arbo- retum		Košut- ňak		Topč. park						
		♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	
1	<u>Cheilosia pictipennis</u> Egger		-	-	-	-	-	-	-	-	-	-
2	Cheilosia impressa Loew.		-	-	-	-	-	-	-	-	-	-
3	✓ Cheilosia nigripes (Meig.) ✓		-	8	-	1	3	3	-	-	-	5
4	Cheilosia proxima (Zett.)		-	-	-	2	-	-	-	-	-	-
5	Cheilosia flavipes (Panz.)		-	3	-	-	-	-	-	-	-	-
6	Cheilosia imperfecta Beck.	Yu	-	1	-	-	-	-	-	-	-	-
7	✓ Cheilosia latifacies Loew.		-	-	-	-	-	-	-	1	-	-
8	✓ Cheilosia personata Loew.		-	-	-	-	-	-	-	-	-	-
9	Cheilosia soror (Zett.)		-	-	1	-	-	-	1	-	-	-
10	Cheilosia variabilis (Panzer)		-	-	1	-	-	-	-	1	-	-
11	Cheilosia conops Beker		-	-	-	-	-	-	-	1	-	-
12	Cheilosia honesta Rond.	Yu	-	-	-	-	-	-	-	-	-	-
13	Cheilosia albitarsis (Meig.)		-	-	9	3	8	-	-	-	1	-
14	Cheilosia canicularis (Panzer)		-	-	-	-	-	-	-	-	-	-
15	✓ <u>Cheilosia Loewi</u> Becker	Srb	-	-	-	1	-	-	-	-	-	-
16	Cheilosia montana Egger	BH	-	-	-	-	-	-	-	-	-	-
17	Cheilosia chloris (Meig.)	Srb	-	1	-	-	-	-	-	-	-	-
18	Cheilosia mutabilis (Fall.)		-	-	-	-	-	-	-	-	-	-
19	Cheilosia melanopa (Zett.)	Yu	-	-	2	-	-	-	-	-	-	-
20	Merodon clavipes (Fabr.)		-	-	-	-	-	-	-	1	-	-
21	Merodon armipes Rond.		-	-	-	-	-	-	2	-	-	-
22	Merodon auripes (Sack.)		-	-	-	-	-	-	-	-	1	-
23	Microdon mutabilis (L.)	BH	-	-	-	-	-	-	-	2	-	1
24	Microdon devius (L.)	Srb	-	-	-	-	-	-	-	2	-	2
25	Orthonevra frontalis (Loew.)		-	-	-	-	1	-	-	-	-	-
26	Neocnemodon latitarsis (Egger)	Srb, BH	-	1	1	-	-	-	-	-	-	-
27	Ferdinandea cuprea (Scop.)		-	1	1	-	-	-	2	2	-	-
28	Pipiza austriaca Meig.		-	-	-	1	-	-	-	1	-	-
29	Pipiza noctiluca (L.)		-	-	-	-	-	-	-	3	-	-
30	Pipiza quadrimaculata (Panzer)		-	-	-	-	-	-	-	1	-	-
31	Pipiza bimaculata Meig.		-	-	-	-	-	-	-	2	-	-
32	Brachypalpus valgus (Panzer)		-	-	-	1	-	-	-	-	-	-
33	<u>Rhingia campestris</u> Meig.		-	-	1	-	-	-	1	-	-	-
34	Rhingia rostrata (L.)	Srb	-	-	-	-	-	-	-	2	-	-
35	<u>Calliprobola speciosa</u> (Rossi)		-	-	-	-	-	-	-	-	-	-
36	<u>Pipizela virens</u> (Fabr.)		-	-	-	-	1	1	-	-	-	-

				Vojvodina												Bosna Hercegovina			
Debeli Lug		Tara		Ristovača		Kara-vukovo		Fruška Gora		Devoj. Bunar		Šušara		Dubovac		Belaš-nica		Bjelo Pole	
♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	5
-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
-	6	-	-	6	1	-	-	-	-	-	-	-	-	-	-	-	-	5	-
-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-
2	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	1	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

pokračování tab. 2

S i t e S p e c i e s	New species in the terri- tory	S e r b i a									
		B ě l e h r a d						A v a l a O p l e - n a c			
		Arbe- retum		Košut- ňak		Topč. park		Avala		Ople- nac	
♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀	♂♂	♀♀		
1 Paragus albifrons (Fall.)		-	-	-	-	-	-	1	1	-	-
2 Chrysogaster viduata (L.)		-	-	-	-	-	-	-	-	-	-
3 Pipiza carbonaria Meig.	Yu	-	-	-	-	-	-	-	-	-	-
4 Eristalis arbustorum (L.)		20	6	5	7	13	8	7	9	1	1
5 Eristalis pratorum Meig.		-	2	1	1	-	-	-	-	-	-
6 Eristalis pertinax (Scop.)		-	1	1	2	-	-	1	3	-	-
7 Eristalis tenax (L.)		4	5	3	5	5	3	16	15	4	-
8 Eristalis nemorum (L.)		1	-	-	1	1	-	1	1	2	-
9 Eristalis rupium Fabr.		1	1	-	-	-	-	-	-	-	-
10 Eristalis horticola (Deg.)		-	-	1	1	-	-	-	-	1	-
11 Eristalis alpinus (Panz.)		-	-	-	-	-	-	-	-	-	-
Number of imagoes total		97	88	166	115	50	44	182	215	12	22
Number of species total		37		52		21		62		15	
Number of genera total		22		26		16		31		10	

(*) Yu - Jugoslavia, Srb - Serbia, Voj - Vojvodina, BH - Bosna and Hercegovina

				V e j v o d i n a												B e s n a			
Debeli		Tara		Risto-		Kara-		Fruška		Devoj.		Šušara		Dubo-		Belaš-		Bjelo	
Lug				vača		vukovo		Gora		Bunar		vac				nica		Pole	
đđ	qq	đđ	qq	đđ	qq	đđ	qq	đđ	qq	đđ	qq	đđ	qq	đđ	qq	đđ	qq	đđ	qq
-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	1	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
-	1	-	1	4	7	6	-	1	-	-	1	-	-	-	-	-	-	2	-
-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	2	2	4	7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1
-	-	-	-	8	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	58	11	21	51	42	7	4	10	30	12	12	5	5	2	6	1	15	43	60
	30		13		28		8		13		12		9		5		11		36
	19		8		18		8		11		11		7		4		7		15

d) Tara - Metasyrphus latifasciatus (Macq.), M. lapponicus (Meig.), Parasyrphus punctulatus (Verr.), Sphaerophoria taeniata (Meig.).

The papers on Syrphidae of Yugoslavia published so far do not contain the collections from altitudes higher than 1500 m. The site Bjelašnica (2067 metres above sea-level) confirms the occurrence of this family in altitude over 2000 m by eleven species caught (Tab. 2). On this site the flight of imagoes of Volucella genera moving over the surface in a considerable height was observed and they could not be caught.

The paper by Šimić will include further knowledge in this field; her collections have been carried out on the site Durmitor (2500 m above sea-level).

The Syrphid fauna of Yugoslavia was studied in Serbia, Macedonia, Slovenia, Bosna and Hercegovina, but in spite of it we have managed to find out the occurrence of further nine new species in Yugoslavia, 14 species in Serbia, 3 species in Vojvodina and 19 in Bosna and Hercegovina.

Little is known about Syrphidae in Monte Negro, particularly in mountain regions.

Conclusion

1.400 imagoes of the Syrphid family belonging to 42 genera and 114 species were caught on 11 sites in Serbia, Vojvodina, Bosna and Hercegovina between April 15 and June 24, 1983.

Nine new species were found in the territory of Yugoslavia, 14 species in Serbia, 3 species in Vojvodina, 19 species in Bosna and Hercegovina.

Acknowledgement

I would like to express my gratitude to Mr. L á s k a of The Research Institute of Vegetable Growing and Breeding, Olomouc, Mr. S t o l l á r of The Pedagogical Faculty, Nitra and Ms. Š i m i ć of the University of Novi Sad, Yugoslavia for the determination of Syrphid imagoes. I also thank to Dr. H o r n of The University of M. Luther in Halle, GDR for kind borrowing the comparative material.

References

- DUŠEK, J., LÁSKA, P. 1977: Diptera - Pestřenkovití in Klíč zviřeny ČSSR, V. díl, 203 - 216, ČSAV Praha.
- COE, R. L. 1953: Handbooks for the Identification of British Insects, Diptera, Syrphidae, 98 pp. London.
- COE, R. L. 1956: Diptera iz Jugoslavije prokupljeno od maja do juna 1955 sa naznakom nalazista i promedbama. Gl. Prir. Muz. Srp. Zem., B, 8: 75 - 96.
- COE, R. L. 1960: A new Syrphus from Yugoslavia. Proc. Roy. Ent. Soc. London /B/ 29: 73 - 74
- GLUMAC, S. 1955: Osolike muve Srbije (Syrphidae, Diptera) iz zbirke Prirodnjackog muzeja srbske zemlje u Beogradu. Zaštita bilja, 27: 1 - 43.
- GLUMAC, S. 1956: O nekim vrstama sirfida (Syrphidae, Diptera) koje su prvi put nadane na teritoriji Jugoslavije. Zbor. Mat. Srp. ser. prir. nauk., 10: 3 - 5.
- GLUMAC, S. 1956: Zbirka sirfida (Syrphidae, Diptera) Biološkog instituta u Sarajevu. God. Biol. Inst. 7 (1-2): 115 - 124.
- GLUMAC, S. 1959: Syrphidae (Diptera) Fruške Gore. Zbor. Mat. srp., ser. prir. nauk., 17: 37 - 78.
- GLUMAC, S. 1968: Sirfide (Syrphidae, Diptera) u Makedoniji. God. Fil. fak. N. Sad. 11 (2): 845 - 880.
- GLUMAC, S. 1972: Catalogus faunae Jugoslaviae III/6 - Syrphoidea, 70 pp., Ljubljana.

- LANGHOFFER, A. 1917-1923: Prilozi fauni diptera Hrvatske. Glas. Hrv. Prir. društva 29, 30, 31, 39, 40.
- LECLERQ, M. 1961: Syrphidae (Diptera) de Yugoslavie. Mus. Maced. Scien. Natur., 22 (81): 179 - 181.
- SACK, P. 1932: Syrphidae. Die Fliegen der Palearktischen Region. Lindner. 31. *
- SCHINER, J. R. 1857: Die Österreichischen Syrphidae. - Verh. zool-bot. Ges. Wien, 1857.
- SCHINER, J. R. 1862: Fauna austriaca. Die Fliegen, p. 1. Wien.
- STROBL, G. 1898: Fauna diptera Bosne, Hercegovine i Dalmacije. Gl. Zem. Muz. B. i H., 10.
- STROBL, G. 1900: Dipterenfauna von Bosnien, Hercegovina und Dalmatien. Wiss. Mitt. aus Bosn. und Herz., 7.
- STROBL, G. 1904: Neue Beiträge zur Dipterenfauna der Balkanhalbinsel. Wiss. Mitt. aus Bosn. und Herz., Wien.
- ŽIVOJINOVIĆ, S. 1950: Fauna insekata šumske Domene Majdanpek. Pos. izd. SAN, 160 (2), 206: 209.

PRÍSPĚVEK K POZNÁNÍ PESTŘENEK (Diptera, Syrphidae)
JUGOSLÁVIE

Souhrn

Jugoslávie ovlivněna klimatickými podmínkami má velmi bohatou entomofaunu, která není tak detailně prostudována, jako je tomu např. v Československu. Čeleď pestřenkovitých (Syrphidae) studoval GLUMAC (1956, 1959, 1968, 1972) a někteří další autoři, jejichž výsledkem bylo zjištění 326 druhů a 57 poddruhů této čeledi.

Cílem naší práce bylo na základě sběru imág čeledi Syrphidae (duben - červen 1983) přispět k poznání fauny pestřenek na území Srbska, Vojvodiny, Bosny a Hercegoviny. Metodou smyčků a individuálním lovem imág na 4 stabilních, permanentně navštěvovaných lokalitách a 11 dalších plochách bylo zachyceno 1400 imág pestřenek (737 samic a 663 samců náležících do 42 rodů a ke 114 druhům.

Zcela zvláštní postavení měla lokalita Deliblatski pesak, která je označována za "Evropskou saharu" a je k ní soustředěna pozornost od roku 1818. Na základě našich sběrů došlo ke zjištění 6 nových druhů pro tuto oblast. Porovnáním dosud známých údajů o syrphido-fauně Bělehradu a okolí, Tara planiny můžeme konstatovat nové druhy pro lokalitu Košutňak (20), Topčiderski park (6), Avala (36), Tara planina (4). Výskyt pestřenek v nadmořské výšce nad 2 000 m byl potvrzen na Belašnici (tab. 2).

Fauna pestřenek Jugoslávie byla v minulosti studována v Srbsku, Makedonii, Dalmacii, Bosně a Hercegovině, přesto se nám podařilo zjistit výskyt dalších nových druhů čeledi Syrphidae pro Jugoslávii (9), Srbsko (14), Vojvodinu (3), Bosnu a Hercegovinu (20).

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