

HOVERFLY FAUNA (DIPTERA: SYRPHIDAE) OF THE SOUTHERN PART OF THE MOUNTAIN STARA PLANINA, SERBIA

S. ŠIMIĆ AND A. VUJIĆ

Institute of Biology, PMF, University of Novi Sad, Trg Dositeja Obradovića 2,
YU-21000 Novi Sad

Preliminary results of the hoverfly fauna investigation on the Serbian part of Stara Planina are presented. The presence of 132 species from 43 genera was established. Species *Cheilosia pascuorum* Beck. has been for the first time recorded for the Balkan Peninsula. Species: *Cheilosia antiqua* Meig., *C. frontalis* Loew, *C. pubera* Zett., *C. brunnipennis* Beck., *Myolepta nigratarsis* Coe and *Neocnemodon pubescens* Del. et Psch.-Wal. have been for the first time registered for FR Yugoslavia. These are the first findings of *Cheilosia gigantea* Meig., *C. melanura* Beck., *C. personata* Loew, *C. rhynchops* Egger, *Lejota ruficornis* Zett., *Pipiza quadrimaculata* Panz., *Pipizella divicoi* Goeld. de Tief. and *Platycheirus manicatus* Meig. for Serbia.

KEY WORDS: Diptera, Syrphidae, Mt. Stara Planina, Serbia.

INTRODUCTION

The Syrphidae, known as hoverflies, comprise one large family of the 5000 described species. It is one of the best known groups of Diptera. More than 400 hoverfly species are registered for the Balkan Peninsula so far. Some of the Balkan mountains are well investigated: Durmitor (ŠIMIĆ, 1987), Kopaonik (VUJIĆ & ŠIMIĆ, 1989), Vršacke Planine (VUJIĆ & ŠIMIĆ, 1994), Fruška Gora (VUJIĆ & GLUMAC, 1994), but the others are still poorly known.

The location of Stara Planina in the central part of the Balkan Peninsula, its climatic, hydrographic and biocenoses characteristics enable the formation of distinct faunistic diversity. Hoverfly fauna of this region has been unknown so far, and that was one of the main reasons for our decision to start with the researching. This paper presents the first results of this work.

AREA EXAMINED

Stara Planina is the last, western branch of the mountain range of the Balkans and the state border between FR Yugoslavia and Bulgaria. Under the right angle from the main crest descend several secondary crests separated by deep steep-sided ravines. The highest peaks on the border range are Midžor (2169 m), Bezimeni Vrh, Vražja Glava, Tri Kladenca, Bratkova Strana, Krvave Bare etc. This region belongs to moderate continental climatic conditions with some influences of east European and steppe climate. The largest part of the central massif is composed of silicates and due to this fact the mountain is rich in running waters. During the snow melting a lot of streams appear. The Yugoslav part of the mountain massif belongs to the basin of the river Timok.

Thanks to this climatic and hydrogeographical features Stara Planina is represented with various types of forests, pastures, forest meadows as well as with hydrophilous and rocky vegetation (GREBENŠČIKOV, 1950).

Investigation was carried out in the basin of Toplodolska and Dojkinačka rivers and an isolated crest Planinica (Fig: 1). These were the areas with the

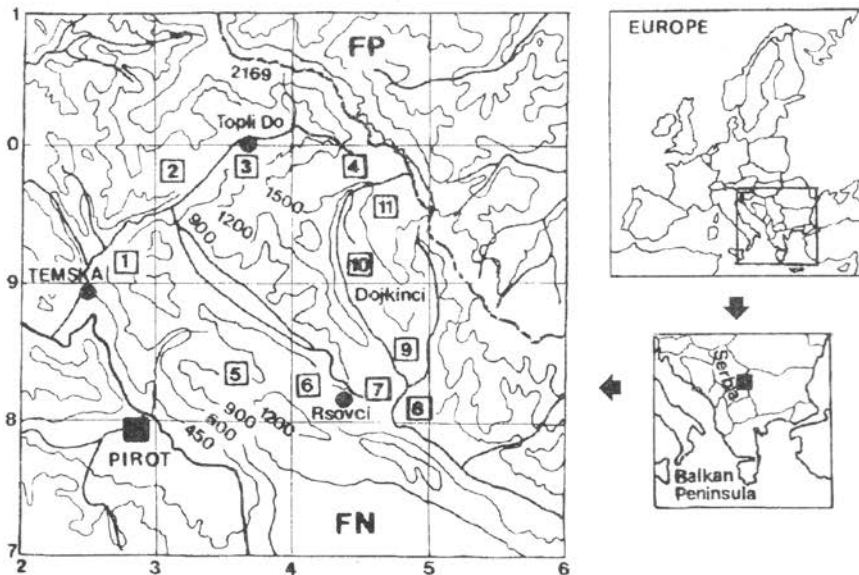


Fig. 1. A map of the mountain Stara Planina with UTM signs and investigated localities: 1. Temska; 2. Temštica; 3. Topli Do; 4. Pilj; 5. Planinica; 6. Rsovci; 7. Visočica; 8. Okolište; 9. Brlog; 10. Dojkinačka river; 11. Arbinje.

greatest number of examined localities. The fauna of oak forests (*Quercetum confertae-cerris* Rudski), bay oaks (*Quercetum montanum serbicum* Černjav. et Jovan.), oak and hornbeam forests, mountain beech forests (*Fagetum subalpinum serbicum* Greb.) and spruce forests (*Piceetum excelse serbicum* Greb.) was the subject of our investigations.

MATERIAL AND METHODS

The investigations were carried out during two years (1987, 1988) on eleven localities (Fig. 1). The material was collected during seven field trips, from April to August. About 1500 samples of hoverflies were captured. The material is deposited in the collection of Institute of Biology in Novi Sad.

RESULTS, DISCUSSION AND CONCLUSIONS

Faunistic review

A two-year investigation of the south part of Stara Planina resulted in registration of 132 species and 43 genera of hoverflies.

The list below presents the distribution of each species, and the records of the species that are particularly significant for their faunistic and zoogeographical characteristics. The following abbreviations are used: Cos - cosmopolitan; H - Holarctic (CH - Central Holarctic, NH - North Holarctic); P - Palaearctic (CP - Central Palaearctic); O - Oriental region; A - Australia; Nt - Neotropical region; S - Siberia; CA - Central Asia; Cs - Caucasus; E - Europe (NE - North Europe, CE - Central Europe, SE - South Europe, SEaE - South-East Europe); ML - wide- Mediterranean (EaML - East Mediterranean).

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|---|-----------|
| 1. <i>Baccha elongata</i> (Fabricius, 1775) | H |
| 2. <i>Brachymyia berberina</i> (Fabricius, 1805) | P |
| 3. <i>Brachyopa bicolor</i> (Fallen, 1817) | E, S |
| 4. <i>Brachyopa dorsata</i> Zetterstedt, 1837 | CE, NE, S |
| 5. <i>Brachyopa maculipennis</i> Thompson, 1980 | CE |
| Records: Dojkinačka river 6.05.1988, 1♂ 1♀. | |
| <i>B. maculipennis</i> was recorded for Switzerland, Austria and Roumania (PECK, 1988). This is the only record for Balkan Peninsula until now (VUJIĆ, 1991). | |
| 6. <i>Brachypalpus valgus</i> (Panzer, 1798) | CE |
| 7. <i>Ceriana conopsoides</i> (Linnaeus, 1758) | P |
| 8. <i>Cheilosia albipila</i> Meigen, 1838 | E, S |
| 9. <i>Cheilosia albitarsis</i> (Meigen, 1822) | P |

10. *Cheilosia antiqua* (Meigen, 1822) CE, NE, S
Records: Dojkinačka river 29.05.1987, 9♂ 4♀; Pilj 28.05.1987, 2♂ 1♀. First records for FR Yugoslavia.
11. *Cheilosia barbata* Loew, 1857 E
12. *Cheilosia bracusi* Vujić et Claussen, 1994 CE, SE
Records: Dojkinačka river 29.05.1987, 1♀, 6.05.1988, 3♂; Pilj 28.05.1987, 1♀; Planinica 27.05.1987, 1♂; (paratypes).
13. *Cheilosia canicularis* (Panzer, 1801) CP
14. *Cheilosia chrysocoma* (Meigen, 1822) CE, NE, S
15. *Cheilosia cumanica* (Szilady, 1938) SEaE
16. *Cheilosia fasciata* Schiner et Egger, 1853 CE
17. *Cheilosia flavipes* (Panzer, 1798) CE, NE, S
18. *Cheilosia frontalis* Loew, 1857 CE, NE
Records: Dojkinačka river 29.05.1987, 1♀.
First record for FR Yugoslavia.
19. *Cheilosia gigantea* (Meigen, 1822) E, S
Records: Arbinje 26.06.1987, 1♂ 3♀; Dojkinačka river 29.05.1987, 2♀, 26.06.1987, 1♀, 30.05.1988, 3♀; Pilj 28.05.1987, 6♀. First records for Serbia.
20. *Cheilosia grossa* (Fallen, 1817) P
21. *Cheilosia impressa* Loew, 1840 P
22. *Cheilosia lenis* (Becker, 1894) CE, Cs
23. *Cheilosia lenta* (Becker, 1894) CE
24. *Cheilosia melanopa* (Zetterstedt, 1843) CE, NE
25. *Cheilosia melanura* (Becker, 1894) CE, S
Records: Dojkinačka river 30.05.1988, 1♀.
First record for Serbia.
26. *Cheilosia nigripes* (Meigen, 1822) E, S
27. *Cheilosia orthoricha* Vujić et Claussen, 1994 CE
Records: Dojkinačka river 29.05.1987, 1♀, 6.05.1988, 3♀; Temska-Topli Do 7.05.1988, 1♂; (paratypes).
28. *Cheilosia pagana* (Meigen, 1822) H
29. *Cheilosia pascuorum* (Becker, 1894) CE, NE
Records: Temska-Topli Do 30.04.1987, 1♂.
First records for Balkan Peninsula.
30. *Cheilosia personata* (Loew, 1857) CE
Records: Planinica 27.06.1987, 2♂ 1♀.
First records for Serbia.
31. *Cheilosia proxima* (Zetterstedt, 1843) E, S
32. *Cheilosia pubera* (Zetterstedt, 1838) E, S
Records: Arbinje 26.06.1987, 1♂ 1♀.
First records for FR Yugoslavia.
33. *Cheilosia rhynchops* Egger, 1860 CE

Records: Arbinje 26.06.1987, 1♂ 3♀; Dojkinačka river
30.05. 1988, 1♂ 10♀; Topli Do 28.05.1987, 2♀.

First records for Serbia.

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| 34. <i>Cheilosia rufipes</i> (Preyssler, 1793) | P |
| 35. <i>Cheilosia ruralis</i> (Meigen, 1822) | E, S |
| 36. <i>Cheilosia brunnipennis</i> (Becker, 1894) | EaML |
| Records: Topli Do 3.04.1987, 1♂ 2♀. | |
| First records for FR Yugoslavia. | |
| 37. <i>Cheilosia scutellata</i> (Fallen, 1817) | P |
| 38. <i>Cheilosia semifasciata</i> (Becker, 1894) | CE, NE |
| 39. <i>Cheilosia uviformis</i> (Becker, 1894) | CE, NE |
| 40. <i>Cheilosia variabilis</i> (Panzer, 1798) | E, S |
| 41. <i>Cheilosia vernalis</i> (Fallen, 1817) | E, S |
| 42. <i>Cheilosia vicina</i> (Zetterstedt, 1849) | E, S |
| 43. <i>Cheilosia vulpina</i> (Meigen, 1822) | CE, S |
| 44. <i>Cheilosia zetterstedti</i> (Becker, 1894) | CE, SE |
| 45. <i>Chrysogaster lucida</i> (Scopoli, 1763) | E |
| 46. <i>Chrysotoxum arcuatum</i> (Linnaeus, 1758) | P, O |
| 47. <i>Chrysotoxum elegans</i> Loew, 1841 | P |
| 48. <i>Chrysotoxum octomaculatum</i> Curtis, 1837 | E, S |
| 49. <i>Chrysotoxum vernale</i> Loew, 1841 | E, S |
| 50. <i>Criorrhina asilica</i> (Fallen, 1816) | E |
| 51. <i>Dasysyrphus albostriatus</i> (Fallen, 1817) | P |
| 52. <i>Dasysyrphus lunulatus</i> (Meigen, 1822) | H |
| 53. <i>Dasysyrphus tricinctus</i> (Fallen, 1817) | CE, NE, S |
| 54. <i>Dasysyrphus venustus</i> (Meigen, 1822) | H |
| 55. <i>Didea fasciata</i> (Macquart, 1834) | P, O |
| 56. <i>Epistrophe eligans</i> (Harris, 1780) | E |
| 57. <i>Epistrophe grossulariae</i> (Meigen, 1822) | H |
| 58. <i>Episyrphus balteatus</i> (De Geer, 1776) | H, O, A |
| 59. <i>Eristalis arbustorum</i> (Panzer, 1798) | CE, S |
| 60. <i>Eristalis horticola</i> (De Geer, 1776) | P, O |
| 61. <i>Eristalis jugorum</i> Egger, 1858 | CE |
| 62. <i>Eristalis nemorum</i> (Linnaeus, 1758) | H |
| 63. <i>Eristalis pertinax</i> (Scopoli, 1763) | E |
| 64. <i>Eristalis pratorum</i> Meigen, 1822 | P |
| 65. <i>Eristalis rupium</i> Fabricius, 1805 | E, S |
| 66. <i>Eristalis tenax</i> (Linnaeus, 1758) | Cos |
| 67. <i>Eumerus sogdianus</i> Stackelberg, 1952 | CE, CA |
| 68. <i>Hammerschmidtia ferruginea</i> Fallen, 1817 | E, S |
| 69. <i>Lejota ruficornis</i> (Zetterstedt, 1843) | P |
| Records: Topli Do-Pilj 25.06.1987, 1♀. | |
| First record for Serbia. | |

70. *Melangyna cincta* (Fallen, 1817) E, S
 71. *Melangyna lasiophthalma* (Zetterstedt, 1843) P
 72. *Melanostoma mellinum* (Linnaeus, 1758) H
 73. *Melanostoma scalare* Fabricius, 1794 P, O, Nt
 74. *Meliscaeva cinctella* (Zetterstedt, 1843) H, O
 75. *Merodon abberans* Egger, 1860 CE, SE, Cs
 76. *Merodon aeneus* Meigen, 1822 ML
 77. *Merodon armipes* Rondani, 1845 ML
 78. *Merodon avidus* (Rossi, 1790) ML
 79. *Merodon cinereus* (Fabricius, 1794) CE, SE, Cs
 80. *Merodon clavipes* (Fabricius, 1781) ML
 81. *Merodon crymensis* Paramonov, 1925 EaML
 82. *Merodon ruficornis* Meigen, 1822 CE, SE, Cs
 83. *Merodon strobli* Bradescu, 1986 Endemic
 84. *Merodon tricinctus* Sack, 1913 ML
 85. *Metasyrphus corollae* (Fabricius, 1794) Cos
 86. *Metasyrphus lapponicus* (Zetterstedt, 1838) CH, NH
 87. *Metasyrphus luniger* (Meigen, 1822) H, O
 88. *Metasyrphus nitens* (Zetterstedt, 1843) P
 89. *Microdon mutabilis* (Linnaeus, 1758) E, S
 90. *Myiatropa florea* (Linnaeus, 1758) P
 91. *Myiolepta nigratarsis* Coe, 1957 E, Cs
 Records: Topli Do-Pilj 25.06.1987, 1 ♀.
 First record for FR Yugoslavia.
 92. *Myolepta vara* (Panzer, 1798) CE
 93. *Neoascia annexa* (Muller, 1776) CE
 94. *Neoascia meticulosa* (Scopoli, 1763) CE
 95. *Neoascia obliqua* Coe, 1940 CE
 96. *Neoascia podagrica* (Fabricius, 1776) E, S
 97. *Neoascia unifasciata* (Strobl, 1898) CE
 98. *Neocnemodon pubescens* Del. et Psch.-Wal., 1955 CE, NE
 Records: Dojkinačka river 30.05.1988, 1 ♂.
 First record for FR Yugoslavia.
 99. *Paragus majoranae* Rondani, 1857 CE, SE
 100. *Parasyrphus macularis* (Zetterstedt, 1843) CE
 101. *Parasyrphus vittiger* (Zetterstedt, 1843) CE, S
 102. *Pipiza noctiluca* (Linnaeus, 1758) E, S
 103. *Pipiza quadrimaculata* (Panzer, 1804) E, S
 Records: Topli Do-Pilj 25.06.1987, 1 ♀.
 First record for Serbia.
 104. *Pipizella divicoi* Goeldlin de Tiefenau, 1974 CE
 Records: Dojkinačka river 6.05.1988, 1 ♂; Topli Do-Pilj
 28.05.1987, 1 ♂, 25.06.1987, 1 ♂; Crni Vrh 8.05.1988, 1 ♂ 2 ♀.
 First records for Serbia.

105. <i>Pipizella viduata</i> (Linnaeus, 1758)	E, S
106. <i>Platycheirus ambiguus</i> (Fallen, 1817)	H, O
107. <i>Platycheirus cyaneus</i> (Muller, 1764)	H, O
108. <i>Platycheirus manicatus</i> (Meigen, 1822)	E, S
Records: Topli Do-Pilj 25.06.1987, 1♂. First record for Serbia.	
109. <i>Platycheirus scutatus</i> (Meigen, 1822)	H
110. <i>Pocota personata</i> (Harris, 1780)	CE, Cs
111. <i>Rhingia campestris</i> Meigen, 1822	E, S
112. <i>Scaeva dignota</i> (Rondani, 1857)	ML
113. <i>Scaeva pyrastris</i> (Linnaeus, 1758)	H
114. <i>Scaeva selenitica</i> (Meigen, 1822)	P, O
115. <i>Sphaerophoria scripta</i> (Linnaeus, 1758)	H, O
116. <i>Sphegina clunipes</i> (Fallen, 1816)	E, S
117. <i>Sphegina latifrons</i> Egger, 1865	CE
118. <i>Sphegina sublatifrons</i> Vujić, 1990	Endemic
Records: Dojkinačka river 29.05.1987, 1♂; Arbinje 26.06.1987, 1♂ (paratypes).	
119. <i>Syrpitta pipiens</i> (Linnaeus, 1758)	H, O
120. <i>Syrphus ribesii</i> (Linnaeus, 1758)	H
121. <i>Syrphus torvus</i> Osten Sacken, 1875	H, O
122. <i>Syrphus vitripennis</i> Meigen, 1822	H, O
123. <i>Volucella bombylans</i> (Linnaeus, 1758)	H
124. <i>Volucella inanis</i> (Linnaeus, 1758)	P
125. <i>Volucella pellucens</i> (Linnaeus, 1758)	P, O
126. <i>Volucella zonaria</i> (Podda, 1761)	P
127. <i>Xanthandrus comtus</i> (Harris, 1776)	P, O
128. <i>Xanthogramma citrofasciatum</i> (De Geer, 1776)	E, S
129. <i>Xanthogramma pedissequum</i> (Harris, 1776)	E, S
130. <i>Xylota segnis</i> (Linnaeus, 1758)	H
131. <i>Xylota sylvarum</i> (Linnaeus, 1758)	E, S
132. <i>Xylota xanthocnema</i> Collin, 1939	CE

Three species have been described on the basis of material collected on Stara Planina: *Cheilosia bracusi* (VUJIĆ & CLAUSSEN, 1994), *Cheilosia orthotricha* (VUJIĆ & CLAUSSEN, 1994) and *Sphegina sublatifrons* (VUJIĆ, 1990). The paratypes of these species from Stara Planina are preserved in the collection of Institute of Biology in Novi Sad.

Cheilosia pascuorum has been for the first time recorded for the Balkan Peninsula. The record of *Brachyopa maculipennis* from Stara Planina is the only one for Balkan (VUJIĆ, 1991).

The following five species: *Cheilosia antiqua*, *C. frontalis*, *C. pubera*, *C. brun-nipennis*, *Myolepta nigratarsis* and *Neocnemodon pubescens* have been for the first time registered on the territory of FR Yugoslavia.

These are the first findings of *Cheilosia gigantea*, *C. melanura*, *C. personata*, *C. rhynchops*, *Lejota ruficornis*, *Pipiza quadrimaculata*, *Pipizella divicoi* and *Platycheirus manicatus* for Serbia.

Zoogeographical characteristics

The presence of species with different range types in the fauna of investigated region is shown in Fig. 2. The most numerous are the species with range in Europe and wider (EuL) - 60%. Species with narrower range types (NCE, CE, CSE) are almost equally represented (between 10% and 15%). Mediterranean species (s.str.) have not been recorded on Stara Planina. Within the group of species with special range (SR) there are two endemic species, namely: *Merodon strobli* - a Carpathian species and *Sphegina sublatifrons* - endemic for the central Balkan, recorded only on few high mountains (Kopaonik, Stara Planina, Šar-planina).

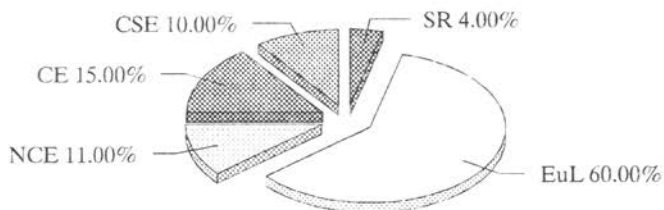


Fig. 2. The presence of species with different range types in the hoverflies fauna on Stara Planina: EuL - species with the range in Europe and wider; NCE - species with Central and North European distribution; CE - Central European species; CSE - species with the range in South and Central Europe or wide-Mediterranean species; SR - species with special range (endemic species).

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ФАУНА ОСОЛИКИХ МУВА (DIPTERA: SYRPHIDAE)
ЛУЖНОГ ДЕЛА СТАРЕ ПЛАНИНЕ, СРБИЈА

С. ШИМИЋ и А. ВУЈИЋ

И з в о д

Положај Старе планине у централном делу Балканског полуострва, њене климатске, хидрографске и биоценолошке одлике је издвајају као изузетно погодан објекат за фаунистичка истраживања. Фауна осолних мува овог подручја је до сада била непозната. У овом раду су изнесени прелиминарни резултати двогодишњих истраживања. Сакупљено је преко 1500 примерака сирфида. Утврђено је присуство 132 врсте из 43 рода. Прикупљени материјал се налази у збирци Института за биологију у Новом Саду.

Три врсте су описане као нове за науку на основу материјала сакупљеног на Старој планини, и то: *Cheilosia bracusi*, *Cheilosia orthotricha* (VUJIĆ & CLAUSSEN, 1994) и *Sphegina sublatifrons* (VUJIĆ, 1990).

Врста *Cheilosia pascuorum* Beck. је први пут регистрована на Балканском полуострву, а налаз врсте *Brachyopa maculipennis* Thomp. је једини до сада познат за Балкан (VUJIĆ, 1991).

Врсте *Cheilosia antiqua* Meig., *C. frontalis* Loew, *C. pubera* Zett., *C. brunipennis* Beck., *Myolepta nigratarsis* Coe и *Neocnemodon pubescens* Del. et Psch.-Wal. су по први пут забележене на подручју СР Југославије.

Налази врста *Cheilosia gigantea* Meig., *C. melanura* Beck., *C. personata* Loew, *C. rhynchops* Egger, *Lejota ruficornis* Zett., *Pipiza quadrimaculata* Panz., *Pipizella divicoi* Goeld. de Tief. и *Platycheirus manicatus* Meig. су први за Србију.

У раду су дати подаци о распрострањењу свих забележених врста. Посматрајући учешће врста са различитим типом ареала у фауни Старе планине може се закључити (Fig. 2.):

- да је највише врста са европским и ширим распрострањењем;
- да је приближно једнака заступљеност врста са ужим ареалом (NCE, CE, CSE), осим медитеранских врста које нису регистроване;
- од врста са посебним ареалом значајно је истаћи два ендема: карпатску врсту *Merodon strobli* Brad. и *Sphegina sublatifrons* Vuj., која представља централнобалкански ендем, регистрован само на неколико високих планина (Копачник, Стара планина, Шар-планина).

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