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NEW DATA ON HOVERFLY DIVERSITY
(INSECTA: DIPTERA: SYRPHIDAE) OF THE SPECIAL
NATURE RESERVE THE OBEDSKA BARA MARSH
(RAMSAR SITE IN SERBIA)

ABSTRACT: Hoverflies are well-investigated insects group on Obedska bara Marsh due to long-term investigations carried out by a scientific team from Faculty of Sciences, University of Novi Sad, Serbia (Vujić et al., 1998). After 15 years, monitoring of biodiversity in this Ramsar site is continued by scientific project 1770 of Ministry of Science and Environmental Protection, Republic of Serbia. Based on new investigations and current nomenclature changes, the following results were obtained: record of *Eupeodes goeldlini* Mazánek, Lásková et Bičík, 1999 is the first for Serbia, nine species were recorded for the first time for Obedska bara Marsh, seven species were replaced by recently established junior synonyms and three were excluded from the faunal list of Obedska bara Marsh. These data complete the list of 93 hoverfly species registered on Obedska bara Marsh.

KEY WORDS: Diptera, Syrphidae, hoverflies fauna, the Obedska bara Marsh

INTRODUCTION

In 1977, the Special Nature Reserve Obedska bara, Marsh Stari Begej — Carska bara Marsh and Ludoško jezero, were designated as Wetlands of International Importance in Serbia according to the Ramsar convention. This seasonally inundated area of the Sava River floodplain, with marshes, ponds, wet meadows and an oxbow lake is located between the villages Obrež and Kupinovo in the Vojvodina Province (Serbia). It presents an important ornithological reserve on the Balkan Peninsula. Many bird species, as natural rarities, are included in the Red Lists of Serbia, and even in the Red Book of Europe and World. Vegetation includes reedbeds and *Salix-Populus* and *Quercus* woodland. Of 179 plant species, 25 are aquatic and 28 are swampy (Gajić and Karadžić, 1991). Hoverflies are well-investigated insects group in this area due to a seven-year investigation done by a scientific team from Faculty of

Natural Sciences, University of Novi Sad (Serbia). Of 87 registered hoverflies species, 29 are of special faunal, taxonomic and zoogeographical interest (Vujić et al., 1998). After 15 years, monitoring of biodiversity in this protected area is continued by scientific project 1770 of Ministry of Science and Environmental Protection, Republic of Serbia. The results gathered for hoverflies are presented here. Wetlands are among the world's most threatened ecosystems and this one has been seriously degraded, the most important problem being the overgrowing and disappearance of wet meadows. The aims of this paper are to complete the faunal data and to emphasize the necessity of permanent application of the biodiversity conservation policy.

MATERIAL AND METHODS

Material analyzed in this study has been collected during two periods, 1981—1990 and 2002—2004. It is deposited in the collection of Department of Biology and Ecology, Faculty of Natural Sciences, University of Novi Sad (Serbia).

Standard methods for collecting and preparation of hoverflies were used during this investigation (Vujić et al., 1998).

RESULTS AND DISCUSSION

The analysis of the recently collected material (2002—2004) and the review of the previously published records (Vujić et al., 1998) produced new data for the fauna of the Obedska bara Marsh.

Anasimyia (Eurimyia) lineata Fabricius, 1787

Vujić et al., 1998: as *Helophilus (Anasymia) lineatus* (Fabricius, 1787)

Remark: Claussen and Torp (1980) considered *Anasimyia* Schiner, 1864 as a good genus, not a subgenus of *Helophilus* Meigen, 1822.

Brachyopa bicolor (Fallén, 1817)

New data: Obedska bara, Debela gora, 21. 04. 2003, 1♂, leg. Vujić, A.

Remark: This is the first record of *Brachyopa bicolor* for the Obedska bara Marsh that is very rare in Serbia. Besides the Obedska bara Marsh, it has been registered in only two localities the Stara planina Mountain (Vujić, 1991; Šimić and Vujić, 1996) and the Petrovaradinsko-Karlovački rit Marsh (Vujić and Glumac, 1994). Data from Homolje (Glumac, 1955) have not been verified because corresponding samples lack from the collection of the Museum of Natural History in Belgrade (Serbia). It is distributed from Sweden and Finland in the north to northern Spain and from in the south Britain through central Europe (and the former Yugoslavia) into the European parts of Russia and on through Siberia to the Pacific. This species is largely arboreal and it occurs at sap runs on trunks of overmature and senile *Acer pse-*

udoplatanus, *Fagus*, *Quercus* and *Castanea*. There is no evidence that adults visits flowers (Speight, 2003). This may also be the reason why it is uncommon and rarely captured.

***Brachyopa maculipennis* Thompson, 1980**

New data: Obedska bara, Debela gora, 21. 04. 2003, 1♂, leg. Vujić, A.

Remark: This very rare species has been found in Serbia in only two localities: the Stara planina Mountain (Vujić, 1991; Šimić and Vujić, 1996) and currently at the Obedska bara Marsh. It appears along streams in humid *Fagus* forests. The larva is still undescribed. Its range includes northern Germany, the Czech Republic, Austria, Slovakia, northern Italy, Romania, parts of the former Yugoslavia. It is probably extinct in Germany (Speight, 2003). This first record for the Obedska bara Marsh is important and it deserves special attention in biodiversity monitoring of Ramsar sites.

***Cheilosia urbana* (Meigen, 1822)**

syn. *Cheilosia praecox* (Zetterstedt, 1843)

Remark: Claussen and Speight (1999) reinstated *Cheilosia urbana* (Meigen, 1822) as the senior valid synonym of *Cheilosia praecox* (Zetterstedt, 1843). This is the most abundant and widely distributed *Cheilosia* species on the Balkan Peninsula.

***Chrysotoxum festivum* (Linnaeus, 1758)**

syn. *Chrysotoxum arcuatum* sensu Thompson, Vockeroth and Speight (1982) nec (Linnaeus, 1758)

Remark: Iliff and Chandler (2000) reinstated the names changed by Thompson et al. (1982) in the genera *Chrysotoxum* and *Xanthogramma*. Thompson et al. (1982) considered *Chrysotoxum festivum* of the former authors as junior synonym of *Chrysotoxum arcuatum* (Linnaeus, 1758). Iliff and Chandler (2000) proposed conservation of usage of the specific names by designation of neotypes for *Musca arcuata* Linnaeus, 1758 (currently *Chrysotoxum arcuatum*) and *Musca citrofasciata* Linnaeus, 1758 (currently *Chrysotoxum arcuatum*).

***Chrysotoxum intermedium* Meigen, 1822**

Chrysotoxum aff. *intermedium* Meigen, 1822 by Vujić et al., 1998

Remark: Sommaggio (2001) examined the types of *Chrysotoxum* species from Giglio Tos' collection, and proposed several synonyms. He gave distinguishing characters for two closely related species, *Chrysotoxum intermedium* Meigen, 1822 and *Chrysotoxum lessonae* Giglio Tos, 1890. On the basis of these features, the male identified as *Chrysotoxum* aff. *intermedium* Meigen, 1822 (Vujić et al., 1998) belongs to *Chrysotoxum intermedium* Meigen, 1822.

***Eristalis lineata* (Harris, 1776)**

syn. *Eristalis horticola* auct. nec (De Geer, 1776)

Remark: Hippa et al. (2001) reviewed the West Palaearctic species of the genus *Eristalis*. They cited that *Eristalis lineata* is the species usually named *horticola*, which is an unjustified replacement name for *Musca nemorum* Linnaeus, 1758. The latter is a synonym of *Eristalis arbustorum* Linnaeus, 1758.

Eristalis pertinax (Scopoli, 1763)

Published data: Šimić and Vujić, 1990 (without records)

New data: Obedska bara, Debela gora, 22. 09. 1981, 1♀, 10. 06. 1984, 2♀♀, 23. 04. 1986, 2♀♀, 23. 04. 1988, 2♂♂, 16. 04. 1989, 1♂.

Remark: Although the material from the Obedska bara Marsh determined as *Eristalis pertinax* was included in the list of *Eristalis* species recorded in Yugoslavia (Šimić and Vujić, 1990), it was omitted by Vujić et al. (1998). As *Eristalis pertinax* is common species, widely distributed in Serbia, Šimić and Vujić (1990) considered that it is not necessary to cite all records.

Eristalis similis Fallén, 1817

syn. *Eristalis pratorum* Meigen, 1822

Published data: Šimić and Vujić, 1990 (without records)

New data: Obedska bara, Debela gora, 23. 04. 1986, 1♀, 11. 06. 1986, 1♀, 23. 04. 1988, 1♂, 1♀, 16. 04. 1989, 2♂♂, Obrež — Ogar, 2. 07. 1987, 1♂.

Remark: Šimić and Vujić (1990) cited *Eristalis pratorum* Meigen, 1822 for Yugoslavia, taking into consideration also the material from the Obedska bara Marsh. Vujić et al. (1998) omitted these records in their monograph on Syrphidae of Obedska bara. Nielsen (1995, 1999) has studied the types of *Eristalis similis* and found this name to be synonymous with *pratorum*.

Eupeodes (Eupeodes) corollae (Fabricius, 1794)

Vujić et al., 1998: as *Metasyrphus (Metasyrphus) corollae* (Fabricius, 1794)

Remark: Until recently, the European species of *Eupeodes* Osten-Sacken, 1877 has appeared under the generic name *Metasyrphus* Matsuura, 1917, but Vockeroth (1986) showed that there is no basis for segregating *Eupeodes* and *Metasyrphus* species into separate genera and pointed out that the generic name *Eupeodes* has precedence over *Metasyrphus* (Speight, 2003).

Eupeodes (Eupeodes) latifasciatus (Macquart, 1829)

Vujić et al., 1998: as *Metasyrphus (Metasyrphus) latifasciatus* (Macquart, 1829)

Remark: The same as for *E. corollae*.

Eupeodes (Lapposyrphus) lapponicus (Zetterstedt, 1838)

Vujić et al., 1998: as *Metasyrphus (Lapposyrphus) lapponicus* (Zetterstedt, 1838)

Remark: The same as for *E. corollae*.

Eupeodes goeldlini Mazánek, Laska et Bičik, 1999

Metasyphus nuba (Wiedemann, 1830) by Vujić et al., 1998

Remark: Mázanek et al. (1999) described two closely related *Eupeodes* species, similar to *Eupeodes bucculatus* (Rondani, 1957): *Eupeodes du-seki* Mazánek, Laska et Bičik, 1999 from Scandinavia and *Eupeodes goeldlini* Mazanek, Láska et Bičik, 1999 from Central Europe and Far East of Russia. The female of *Eupeodes goeldlini* is still undescribed, but Mazanek (pers. comm.) prepared a description including material from the Obedska bara Marsh. This is the first published record of *Eupeodes goeldlini* for Serbia.

Fagisyrphus cinctus (Fallén, 1817)

Vujić et al., 1998: as *Melangyna (Meligramma) cincta* (Fallén, 1817)

Remark: Dušek and Laska (1967) described the monotypic genus *Fagisyrphus* on the basis of the type species *Scaeva cincta* Fallén, 1817. According to Catalogue of Palaearctic Diptera (Peck, 1988) the genus *Fagisyrphus* is congeneric with the genus *Melangyna* Verrill, 1901 that is divided into two subgenera: *Melangyna* and *Meligramma* Frey, 1946. Most of the European syrphidologists (Szymank et al., 1999; Nielsen, 1999) consider *Fagisyrphus* as good genus name and follow Dušek and Laska (1967).

Heringia (Neocnemodon) brevidens (Egger, 1865)

Vujić et al., 1998: as *Neocnemodon brevidens* (Egger, 1865)

Remark: Distinguishing *Heringia* females from females of *Neocnemodon* is uncertain. Vockeroth and Thompson (1987) took this fact into consideration while combining the two genera, under the earlier name *Heringia* (Speight, 2003). This practice is often followed. Claussen et al. (1994) also recognized two subgenera of the genus *Heringia* Rondani, 1856, based on the structure of the aedeagus: *Heringia* s.s. and *Neocnemodon*.

Merodon avidus Rossi, 1790 **B species** (Milankov et al., 2001)

Vujić et al. (1998): as *Merodon avidus* Rossi, 1790

Remark: Milankov et al. (2001) examined genetic divergence in the adult populations of *Merodon avidus* (Rossi, 1790) and detected two cryptic species, *Merodon avidus* A (Mediterranean) and *Merodon avidus* B (mountainous). The results of morphological analysis also confirmed the existence of two taxa. *Merodon avidus* complex is widely distributed and very frequent on the Balkan Peninsula. Because of significant variability, there are many taxa described under the name of *Merodon spinipes* (Fabricius, 1794), that is currently a junior synonym of *Merodon avidus*. Nomination of these two cryptic species demands study of the type material of all synonyms.

Merodon ruficornis Meigen, 1822

syn. *Merodon recurvus* Strobl, 1898

Remark: Dirickx (1994) erected *Merodon recurvus* Strobl, 1898 from a variety of *Merodon mucronatus* Rondani, 1857, and gave it species

status. Although this is a valid species, it has to be renamed. Study of the lectotype of *Merodon ruficornis* Meigen, 1822 and *Merodon mucronatus* var. *recurvus* Strobl, 1898 has shown that *Merodon recurvus* has to be considered as junior synonyms of *Merodon ruficornis* (Radenković et al., 2002).

Microdon analis (Macquart, 1842)

syn. *Microdon latifrons* Loew, 1856

Remark: Doczkal and Schmid (1999) revised the Central European taxa of the genus *Microdon* Meigen, 1803 and reviewed their synonymy. Speight (1978, 1984) considered *Microdon latifrons* Loew, 1856 conspecific with *Microdon eggeri* Mik, 1897, and later also with *Microdon analis* (Macquart, 1842) (Speight, 1994).

Paragus pecchiolii Rondani, 1857

syn. *Paragus majoranae* Rondani, 1857

Remark: Sommagio (2002) re-examined the type material and made a conclusion that *Paragus gorgus* Vujić et Radenković, 1999 is a junior synonym of *Paragus majoranae* Rondani, 1857, while *Paragus pecchiolii* Rondani, 1857 is the valid name for *Paragus majoranae* Rondani, 1857 sensu Goeldlin de Tiefenau (1976).

Parhelophilus versicolor (Fabricius, 1794)

Vujić et al., 1998: as *Helophilus (Parhelophilus) versicolor* (Fabricius, 1794)

Remark: Thompson (1997) revised the genus *Parhelophilus* Girschner, 1897 and discussed its nomenclature: Girschner (1897) divided the genus *Helophilus* Meigen, 1822 into subgenera. Verrall (1901) noted that *Parhelophilus*, as construed by Girschner, was a heterogeneous group. Curran and Fluke (1926) designated a type species, recognized *Parhelophilus* as a distinct group, and treated the group as a genus. North American dipterists with Curran and Fluke, and so did European ones later on.

Pipiza luteibarba Vujić, manuscript name

Pipiza festiva Meigen, 1822 by Vujić et al. (1998), in part

Published data: Vujić et al., 1998 (the Obedska bara Marsh, Kupinske grede, 15. 04. 1990, 1♀, as *Pipiza festiva*).

New data: the Obedska bara Marsh, Kupinske grede, 23. 04. 1986, 1♀.

Remark: Among the material determined as *Pipiza festiva*, Vujić (manuscript) has recognized a sample of a still undescribed species. Description of *Pipiza luteibarba* is in a preparation (Vujić, manuscript). This species is one of the most enigmatic European *Pipiza*. It was collected at two lowland localities near Sava and Morava rivers in Serbia. *Pipiza luteibarba* probably presents a relict Moesian species. The preservation of its habitats is extremely important for protection of this species.

Rhingia rostrata (Linnaeus, 1758)

Rhingia campestris Meigen, 1822 by Vujić et al. (1998), in part

Published data: Vujić et al., 1998 (the Obedska bara Marsh, Kupinske grede, 15. 04. 1990, 1♂, as *Rhingia campestris*).

Remark: Re-examination of material determined as *Rhingia campestris* has shown that one male belongs to *Rhingia rostrata* (Linnaeus, 1758). It occurs in deciduous forest (*Quercus*, *Fraxinus/Fagus*) and scrubs, with a rich, tall-herb ground flora. This species is registered from southern Finland and Denmark to northern Spain; from Britain through Central Europe into the European parts of Russia, the Caucasus and western Siberia. Although frequent during the 19th century, this species disappeared from most parts of Europe during the 20th century and it should probably be regarded as threatened at the European level (Speight, 2003).

Scaeva selenitica (Meigen, 1822)

Scaeva pyrastris (Linnaeus, 1758) by Vujić et al. (1998)

Published data: Vujić et al., 1998 (Obedska bara, Kupinske grede, 3. 04. 1988, 1♀, as *Scaeva pyrastris*).

Remark: Redetermination of the only sample of the genus *Scaeva* collected at the Obedska bara Marsh has excluded *Scaeva pyrastry* from the list of species and added *Scaeva selenitica*. It appears in most types of deciduous forest, including scrub woodland and orchards, plus evergreen *Quercus ilex* forest in southern Europe. This species is distributed from Fennoscandia south to Iberia and the Mediterranean, including North Africa; from Ireland eastwards through much of Europe into Turkey and the European parts of Russia; from the Urals through Siberia to Cis-Baikal and on to Sachalin and the Kuril Isles (Speight, 2003).

Xanthogramma citrofasciatum (De Geer, 1776)

syn. *Xanthogramma festivum* (Linnaeus, 1758)

Remark: Iliff and Chandler (2000) reinstated the names changed by Thompson et al. (1982) in the genera *Xanthogramma* and *Chrysotoxum*. In the genus *Xanthogramma*, the name *citrofasciatum* is proposed as valid one.

Excluded and replaced names

Cheilosia praecox (Zetterstedt, 1843) = *Cheilosia urbana* (Meigen, 1822). Synonymy.

Chrysotoxum arcuatum sensu Thompson, Vockeroth and Speight (1982) nec (Linnaeus, 1758) = *Chrysotoxum festivum* (Linnaeus, 1758). Synonymy.

Chrysotoxum aff. *intermedium* Meigen, 1822 = *Chrysotoxum intermedium* Meigen, 1822. Misidentification.

Eristalis horticola auct. nec (De Geer, 1776) = *Eristalis lineata* (Harris, 1776). Synonymy.

Merodon recurvus Strobl, 1898 = *Merodon ruficornis* Meigen, 1822. Synonymy.

Metasyphus nuba (Wiedemann, 1830) = *Eupeodes goeldlini* Mazánek, Laska et Bičik, 1999. Misidentification.

Microdon latifrons Loew, 1856 = *Microdon analis* (Macquart, 1842).
Synonymy.

Paragus majoranae Rondani, 1857 = *Paragus pecchiolii* Rondani, 1857. Synonymy.

CONCLUSION

Based on new investigations and current nomenclature changes, the following data of special importance for hoverfly diversity at the Obedska bara Marsh should be stated:

— this is the first published record for *Eupeodes goeldlini* in Serbia;

— nine species have been recorded for the first time at the Obedska bara Marsh: *Brachyopa bicolor*, *Brachyopa maculipennis*, *Chrysotoxum intermedium*, *Eristalis pertinax*, *Eristalis similis*, *Eupeodes goeldlini*, *Pipiza luteibarba*, *Rhingia rostrata*, *Scaeva selenitica*;

— seven species have been replaced by recently established junior synonyms: *Cheilosia urbana* (instead *Cheilosia praecox*), *Chrysotoxum festivum* (instead *Chrysotoxum arcuatum*), *Eristalis lineata* (instead *Eristalis horticola*), *Merodon ruficornis* (instead *Merodon recurvus*), *Microdon analis* (instead *Microdon latifrons*), *Paragus pecchiolii* (instead *Paragus majoranae*), *Xanthogramma citrofasciatum* (instead *Xanthogramma festivum*);

— three have been excluded from the faunal list of the Obedska bara Marsh: *Chrysotoxum* aff. *intermedium*, *Metasyphus nuba*, *Scaeva pyrastris*;

— currently, the above mentioned results complete the list of 93 hoverfly species registered at the Obedska bara Marsh.

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НОВИ ПОДАЦИ О ДИВЕРЗИТЕТУ ОСОЛИКИХ МУВА
(INSECTA: DIPTERA: SYRPHIDAE) СПЕЦИЈАЛНОГ РЕЗЕРВАТА ПРИРОДЕ
ОБЕДСКЕ БАРЕ (РАМСАРСКОГ ПОДРУЧЈА У СРБИЈИ)

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Резиме

На Обедској бари осолике муве представљају добро истражену инсекатску групу захваљујући дугогодишњим истраживањима научног тима са ПМФ-а, Универзитета у Новом Саду, Србија (Вујић и сар., 1998). Након 15 година, мониторинг биодиверзитета овог Рамсарског подручја се наставио у оквиру пројекта 1770, Министарства за науку и заштиту животне средине, Републике Србије. На бази нових истраживања и номенклатурних промена добијени су следећи резултати: налаз врсте *Eupeodes goeldlini* представља први податак за Србију, девет врста је регистровано по први пут за Обедску бару, за седам врста су наведени недавно успостављени синоними, а три врсте су искључене са листе фауне осоликих мува Обедске баре. На основу ових података, новоустановљена листа броји 93 врсте сирфида за Обедску бару.