

## Predatory Syrphids /Diptera, Syrphinae/ found in urban green spaces

PAWEŁ TRZCIŃSKI

University of Life Sciences in Poznań, Department of Entomology  
Dąbrowskiego 159, 60-594 Poznań, Poland  
trzcinsk@au.poznan.pl

### Introduction

Predatory dipterons of the Syrphidae family are considered, along with Coccinellidae and Chrysopidae to be the most important group of aphidophags which take part in a natural regulation of aphid population. They play a particularly important role in the urban green space where they can significantly influence plants' wellness. In Polish references there is little data concerning the dipteran fauna of the urban zone. Fragmentary information about the selected groups of such insects come from urban zones of Warsaw and its surrounding areas (BAŃKOWSKA 1981; 1982; CICHOCKA & GOSZCZYŃSKI, 1998), Łódź (KOWALCZYK and WATAŁA, 1991) and the area of Lublin (MALINOWSKA, 1979). In the area of Wielkopolska no research on the predatory syrphid fauna in urban green areas has been carried out so far. Up to now the information related to these dipterons is concerned especially with agrarian areas and their related environment, as well as forests (TRZCIŃSKI & WILKANIEC, 2005, TRZCIŃSKI *et al.*, 2006, TRZCIŃSKI & SIENKIEWICZ 2006). The aim of this paper is to determine the species composition of predatory dipterons of the Syrphinae subfamily (Diptera, Syrphidae) which is found in selected urban green areas of Poznań.

### Material and methods

The observations were carried out in the city of Poznań during the period of 1998-2006 in three sites:

1. The Dendrological Garden of the A. Cieszkowski University of Life Sciences (in 2003), which was set up in 1920 to become part of the Gołecin Green Belt. Now it stretches across 4.2 ha, houses a collection of trees and shrubs (gymnospermae and angiospermae, distributed in a systematic pattern) as well as many herbaceous plant species.
2. The Adam Mickiewicz University Botanical Garden (in 1998-2006), which was set up during 1922-25, at present stretches across 22 ha. Its collection embraces about 8 thousand plant species divided into 10 sections: plant ecology, plant geography, plant biology, plant systematics, plant changeability, rare and nearly extinct plants, protected plants, water and swamp plants, ornamental, horticultural and botanical plants.
3. Areas surrounding the Lake Rusałka (in 2006). The lake, which is located in the Gołecin Forest and the size of which is about 38.5 ha, was created in 1943 as a result of water dam up of the Bogdanka river.

The research was carried out from April until October with a decade-long interval, three observations per month on average. The insects were caught with the deer-stalking method using the entomological net. Dipterons were identified according to the VAN VEEN key (2004).

## Results

During the course of the observations 900 dipterons specimens from 19 genera and 51 species were caught (Tab. 1), which constituted about 30% of the Syrphinae fauna of Poland. The greatest species diversity was observed in the Botanical Garden, where 38 species were recorded, 37 species were found in the park surrounding the Rusałka Lake, and the smallest number of species (17) was recorded in the Dendrological Garden.

Table 1. Index of Syrphinae (Diptera, Syrphidae) species caught in urban green spaces in Poznań

Gatunek	Dendrological Garden	Botanical Garden	Lake Rusałka
<i>Baccha elongata</i> (Fabricius, 1775)	+	+	+
<i>Chrysotoxum bicinctum</i> (Linnaeus, 1758)			+
<i>Chrysotoxum cautum</i> (Harris, 1776)		+	+
<i>Chrysotoxum festivum</i> (Linnaeus, 1758)		+	+
<i>Chrysotoxum vernale</i> Loew, 1841			+
<i>Dasysyrphus albostrigatus</i> (Fallen, 1817)		+	+
<i>Dasysyrphus tricinctus</i> (Fallen, 1817)		+	+
<i>Dasysyrphus venustus</i> (Meigen, 1822)		+	+
<i>Didea alneti</i> (Fallen, 1817)			+

<i>Didea intermedia</i> Loew, 1854			+
<i>Epistrophe eligans</i> (Harris, 1780)	+	+	+
<i>Epistrophe (Epistrophella) euchroma</i> (Kowarz, 1885)		+	
<i>Epistrophe grossulariae</i> (Meigen, 1822)			+
<i>Epistrophe melanostoma</i> (Zetterstedt, 1843)		+	+
<i>Epistrophe nitidicollis</i> (Meigen, 1822)		+	
<i>Episyrrhus (Meliscaeva) auricollis</i> (Meigen, 1822)		+	
<i>Episyrrhus balteatus</i> (De Geer, 1776)	+	+	+
<i>Eriozona erratica</i> (Linnaeus, 1758)	+	+	
<i>Eupeodes corollae</i> (Fabricius, 1794)	+	+	+
<i>Eupeodes lapponicus</i> (Zetterstedt, 1838)		+	
<i>Eupeodes latifasciatus</i> (Macquart, 1829)			+
<i>Eupeodes lundbecki</i> (Scoot-Ryen, 1946)		+	
<i>Eupeodes luniger</i> (Meigen, 1822)		+	+
<i>Heringia heringii</i> (Zetterstedt, 1843)			+
<i>Melangyna (Meligramma) cincta</i> (Fallen, 1817)	+	+	+
<i>Melangyna (Meligramma) guttata</i> (Fallen, 1817)		+	
<i>Melangyna lasiophthalma</i> (Zetterstedt, 1845)	+		
<i>Melangyna quadrimaculata</i> Verrall, 1873	+	+	+
<i>Melangyna umbellatarum</i> (Fabricius, 1794)			+
<i>Melanostoma mellinum</i> (Linnaeus, 1758)	+	+	+
<i>Melanostoma scalare</i> (Linnaeus, 1758)	+	+	+
<i>Pipiza fasciata</i> Meigen, 1822	+		
<i>Pipiza festiva</i> Meigen, 1822		+	+
<i>Pipizella viduata</i> (Linnaeus 1758)		+	+
<i>Platycheirus albimanus</i> (Fabricius, 1781)		+	+
<i>Platycheirus angustatus</i> (Zetterstedt, 1843)		+	
<i>Platycheirus clypeatus</i> (Meigen, 1822)		+	+
<i>Platycheirus fulviventris</i> (Macquart, 1829)			+
<i>Platycheirus peltatus</i> (Meigen, 1822)			+
<i>Platycheirus scutatus</i> (Meigen, 1822)	+	+	+
<i>Scaeva pyrastris</i> (Linnaeus, 1758)		+	+
<i>Scaeva selenitica</i> (Meigen, 1822)		+	+
<i>Sphaerophoria rueppelli</i> (Wiedemann, 1830)	+		
<i>Sphaerophoria scripta</i> (Linnaeus, 1758)	+	+	+
<i>Sphaerophoria taeniata</i> (Meigen, 1822)		+	

<i>Syrphus ribesii</i> (Linnaeus, 1758)	+	+	+
<i>Syrphus torvus</i> Osten-Sacken, 1875	+	+	+
<i>Syrphus vitripennis</i> Meigen, 1822	+	+	+
<i>Xanthandrus comtus</i> (Harris, 1780)		+	
<i>Xanthogramma pedissequum</i> (Harris, 1780)	+	+	+

The following species were found to be common to all the sites: *Baccha elongata* (Fabr.), *Epistrophe eligans* (Harr.), *Episyrphus balteatus* (DeG.), *Eupeodes corollae* (Fabr.), *Melangyna (Meligramma) cincta* (Fall.), *Melangyna quadrimaculata* Verr., *Melanostoma mellinum* (L.), *Melanostoma scolare* (L.), *Platycheirus scutatus* (Meig.), *Sphaerophoria scripta* (L.), *Syrphus ribesii* (L.), *S. torvus* O-S., *S. vitripennis* Meig., *Xanthogramma pedissequum* (Harr.).

The following species were found only in the Botanical Garden: *Epistrophe (Epistrophella) euchroma* (Kow.), *Epistrophe nitidicollis* Meig., *Episyrphus (Meliscaeva) auricollis* Meig., *Eupeodes lapponicus* Zett., *E. lundbecki* Sc-R., *Melangyna lasiophthalma* Zett., *Platycheirus angustatus* Zett., *Sphaerophoria teniata* Meig., oraz *Xanthandrus comtus* (Harr.).

The species such as: *Chrysotoxum bicinctum* L., *Ch. vernale* Loew, *Didea alneti* Fall., *D. intermedia* Loew, *Epistrophe grossulariae* Meig., *Eupeodes latifasciatus* Macq., *Heringia heringii* Zett., *Melangyna umbellatarum* Fabr., *Platycheirus fulviventris* Macq., *P. peltatus* Meig., were recorded only in the area surrounding the Rusalka Lake.

*Pipiza fasciata* Meig., and *Sphaerophoria rueppelli* Wied., were recorded only in the Dendrological Garden.

## Discussion

Analysing the above results one may claim that the Poznań green spaces have a rich fauna of predatory syrphids. Fifty-one species of afidophagous dipterons of 19 genera, of the Syrphinae subfamily are found there. During the research, the presence of a group of a dozen species common to all the sites (Tab. 1) was observed in all the three environments. These are species commonly observed all over Poland (BAŃKOWSKA, 1963). A similar species structure was recorded in other cities (BAŃKOWSKA, 1981; 1982; KOWALCZYK & WATAŁA, 1991; MALINOWSKA, 1979). Although the species composition of the studied parks is different, these differences primarily concern accessory species. The research pointed out to a greater species diffe-

rentiation in the Botanical Garden and in the park surrounding the Rusałka Lake than in the Dendrological Garden. One male and one female of *Didea alneti* (Fall.), which is usually considered to be rare, were found at the Rusałka Lake on July 31. 2006. So far it has been recorded in Poland in the region of Tatra, Silesia and Pomerania (BAŃKOWSKA, 1963). One male of *Epistrophe grossulariae* (Meig.), a species which is common to Pomerania, Silesia and southern Poland was reported at Lake Rusałka site on June 6. 2006. One female of *Epistrophe (Epistrophella) euchroma* (Kow.), a species which is common to Pomerania and southern Poland, was reported in the Botanical Garden on May 13. 2004. *Melangyna (Meligramma) gutatta* (Fall.), common in northern Poland, was reported in the Botanical Garden on June 2. 2003.

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**Drapieżne bzygowate /Diptera, Syrphinae/ odławiane  
w miejskich terenach zieleni**

**Streszczenie**

Obserwacje nad fauną Syrphinae terenów zieleni miejskiej Poznania prowadzono w latach 1998 – 2006, w trzech lokalizacjach: Ogród Dendrologiczny Akademii Rolniczej im. A. Cieszkowskiego, Ogród Botaniczny Uniwersytetu im. A. Mickiewicza, tereny otaczające Jezioro Rusalka. W wyniku badań stwierdzono występowanie 51 gatunków zaliczanych do 19 rodzajów, co stanowi ponad 30% fauny Syrphinae Polski.