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CONOPIDAE (DIPTERA) OF WARSAW AND MAZOVIA

ABSTRACT

A check-list of 28 conopid species recorded from Mazovia and Warsaw is presented. In the administrative boundaries of the town this small group of flies is represented by 21 species. Most of them were recorded in the suburbs.

Urban habitat does not provide suitable conditions for this group. Only three species, *Thecophora atra*, *Th. pusilla*, and *Leopoldius coronatus*, have been found in urban green areas of Warsaw.

Flies of the family *Conopidae* are rarely caught, mostly as single specimens. All the methods used for their sampling so far are inadequate, thus it is practically impossible to analyse them quantitatively.

Conopidae form a very homogeneous group as far as their feeding habits are concerned. All their species occurring in Poland are internal parasites of hymenopterans of the groups *Apoidea*, *Sphaecoidea*, and *Vespoidea*. Their host preferences are little known, and only some better known species can be classified as mono- or polyphages.

Dipterans of this family have world-wide distribution but most species occur on the Southern Hemisphere. A rigorous climate of Europe, Siberia, and North America can be tolerated only by few species of the subfamily *Conopidae* and by a relatively large number of species of the subfamilies *Myopinae* and *Dalmanniinae*. From Poland 50 species are known so far. From Mazovia 28 species have been recorded, including 21 from Warsaw. The data for nine species, however, date from the last century, and they have not been confirmed later. It seems possible that the number of species inhabiting Warsaw decreased with increasing urban pressure. In the present study only three species have been recorded from Warsaw, and the other nine species were caught in suburban parks and woods.

The check-list given below is based on earlier contributions on the fauna of Poland, and containing data on the fauna of Mazovia and Warsaw (Tab. 2). Also the material collected during the four-year study on the fauna of green areas in Warsaw, conducted at the Institute of Zoology PAS is included. Moreover, the list of species prepared by Sznabl [5] already in the last century, as well as recent papers on the fauna of Poland [1—4] are used.

Conopidae of the family *Conopininae* are represented in Mazovia by eight species, of which seven are characterized by large geographical ranges. Most of them can be found far to the north in Scandinavia and Siberia. Only *Leopoldius coronatus* is a thermophilous species, occurring in the Mediterranean basin, in the Caucasus, and reaching Central Europe. In Poland it is caught on rare occasions and so far was recorded from xerothermal areas of southern part of the country. In Warsaw there is its northernmost stand. It is a parasite of the wasp *Vespa germanica* (Fabr.), rather common in Warsaw. In addition to this species, *Conops quadrifasciatus* of the subfamily *Conopininae* was caught in Bemowo. This is one of the most common species of this genus in Poland, parasitizing the bumble-bee *Bombus lapidarius* (L.)

Flies of the subfamily *Dalmaniinae* have not been noted in Warsaw so far. The nearest stands of the two species indicated on the list. *Dalmannia aculeata* and *D. punctata*, are known from the Kampinos forest.

From the subfamily *Myopininae*, richly represented in Mazovia, only two species of the genus *Thecophora* have been recorded in Warsaw, namely *Th. atra* and *Th. pusilla*. They inhabit the whole Palaearctic region and are frequently met on xerothermal sites over Poland. The two species are parasites of honey-bees of the genus *Halictus* Latr., rather common in Warsaw. Both *Th. atra* and *Th. pusilla* were caught in the Łazienki park. The former, in addition, was recorded from a courtyard lawn in the centre of the town. Their numbers show that they occupy nests of *Halictus* in the town. All the other species of the subfamily *Myopininae* were caught beyond the built-up area. For instance, *Myopa buccata* was caught in the Bielany wood, *M. stigma* in Ursynów, *M. testacea* in Młociny, *M. dorsalis* and *Melanosoma pallipes* in Wilanów. Almost all these species have very large geographical ranges since they cover a major part of the Palaearctic region (Tab. 1). They are frequently met over Poland. Larvae of the genus *Myopa* Fabr. are parasites of hymenopterans of the genera *Vespa* L., *Bombus* Latr., *Andrena* Fabr., *Colletes* Latr. and *Eucera* Latr., characterized by large geographical ranges as well.

It follows from this short review that the urban habitat is not suitable for *Conopidae*. Only three species were able to persist in the centre of the town, while the others have been driven to the suburbs where they inhabit mainly larger parks and woods. With few exceptions, the species recorded from Warsaw are rather often met in Mazovia. Larger forests such as the Kampinos forest or Kabackie forest provide suitable conditions for many conopid species. Since they are near to Warsaw and because conopids can cover large distances, most of them reaches the suburbs or even visits parks in the centre.

Conopidae occurring in Warsaw belong to the native fauna living throughout Mazovia. The number of species drops with decreasing distance to the centre of the town. The process of conopid impoverishment in

Table 1. Proportions of zoogeographical elements in conopids of Warsaw and non-urban habitats of Mazovia (N — number of species)

Zoogeographical element	Mazovia		Warsaw									
			Suburbs		Urban green areas							
	Total				Parks		Housing estates		Town centre			
	N	%	N	%	N	%	N	%	N	%	N	%
Palearctic	18	64.00	5	71.00	2	67.00	2	67.00	—	—	1	100.00
Euro-Siberian	6	21.00	1	14.50	—	—	—	—	—	—	—	—
European	1	4.00	1	14.50	—	—	—	—	—	—	—	—
Submediterranean	3	11.00	—	—	1	33.00	1	33.00	—	—	—	—

Table 2. Check-list of *Conopidae* (Diptera) species occurring in Warsaw and Mazovia

No.	Species	Warsaw					
		Mazovia	Suburban areas	Parks	Green areas in housing estates	Town centre	Other sampling areas
1	2	3	4	5	6	7	8
1	<i>Physocephala truncata</i> (Loew)	●	—	—	—	—	—
2	<i>Physocephala chrysorrhoea</i> (Meig.)	●	—	—	—	—	○
3	<i>Physocephala rufipes</i> (Fabr.)	●	—	—	—	—	○
4	<i>Physocephala vittata</i> (Fabr.)	●	—	—	—	—	—
5	<i>Leopoldius coronatus</i> (Rond.)	—	—	+	—	—	—
6	<i>Conops flavipes</i> L.	●	—	—	—	—	○
7	<i>Conops strigatus</i> Wied.	●	—	—	—	—	○
8	<i>Conops quadrifasciatus</i> Deg.	●	●	—	—	—	○
9	<i>Dalmannia aculeata</i> (L.)	●	—	—	—	—	—
10	<i>Dalmannia punctata</i> (Fabr.)	●	—	—	—	—	—
11	<i>Myopa buccata</i> (L.)	●	●	—	—	—	—
12	<i>Myopa dorsalis</i> Fabr.	—	—	—	—	—	●
13	<i>Myopa extricata</i> Collin	●	●	—	—	—	—
14	<i>Myopa fasciata</i> Meig.	●	—	—	—	—	—
15	<i>Myopa occulta</i> Wied.	—	—	—	—	—	○
16	<i>Myopa polystigma</i> Rond.	○	—	—	—	—	○
17	<i>Myopa stigma</i> Meig.	—	●	—	—	—	—
18	<i>Myopa strandi</i> Duda	●	●	—	—	—	—
19	<i>Myopa testacea</i> (L.)	●	●	—	—	—	—
20	<i>Myopa variegata</i> Meig.	●	—	—	—	—	—
21	<i>Zodion notatum</i> Meig.	●	—	—	—	—	○
22	<i>Zodion cinereum</i> (Fabr.)	●	—	—	—	—	○
23	<i>Thecophora atra</i> (Fabr.)	●	—	+	—	+	○
24	<i>Thecophora distincta</i> (Wied.)	○	—	—	—	—	○
25	<i>Thecophora pusilla</i> (Wied.)	●	—	+	—	—	—
26	<i>Melanosoma pallipes</i> (Wied.)	●	●	—	—	—	—
27	<i>Sicus ferrugineus</i> (L.)	●	—	—	—	—	○
28	<i>Sicus fusenensis</i> Ôuchi	●	—	—	—	—	—

Warsaw can also be observed with time. This group contains eight species less than 100 years ago when Sznabl prepared the list.

In recent years the towns is enlarged rapidly, large areas are covered with concrete and asphalt, green spaces being relatively small. As a result, hymenopterans being the hosts of *Conopidae* have a reduced possibility to build their nests. Also air pollution with various toxic chemicals, as well as the application of herbicides and insecticides are of great importance here.

Conopids of the genus *Thecophora* Rond., which live in the centre of the town despite of these harsh conditions, belong to the species common on xerothermal sites throughout Poland. Moreover, they inhabit almost the whole Palaearctic region. It may be suggested that these flies were able to adapt themselves to urban conditions only due to their high ecological tolerance.

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WYŚLEPKI (DIPTERA, CONOPIDAE) WARSZAWY I MAZOWSZA

STRESZCZENIE

Praca zawiera wykaz 28 gatunków *Conopidae* występujących na obszarze Niziny Mazowieckiej oraz Warszawy. Z granic administracyjnych stolicy wykazano dotychczas 21 gatunków z tej niewielkiej grupy muchówek, większość z nich występuje jednak na obrzeżach aglomeracji miejskiej.

Środowisko miejskie nie stwarza odpowiednich warunków bytowych dla *Conopidae*. Zaledwie trzy gatunki: *Thecophora atra*, *Th. pusilla* i *Leopoldius coronatus*, zostały znalezione na terenie zieleni miejskiej Warszawy.