

The genus *Psilota* (Diptera: Syrphidae) in Belgium: a tale of three new species to our fauna in a handful of years

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Abstract

The Syrphidae genus *Psilota* is observed for the first time in Belgium. Three species (*P. anthracina* Meigen, 1822, *P. atra* (Fallén, 1817) and *P. exilistyla* Smit & Vujić, 2008) have been found since 2004. In this paper we give a full account of all observations, including records and a discussion of flower visits by *Psilota*.

Key words: sap runs, forest management, saproxylic, new fauna, *Crataegus* sp.

Résumé

Trois espèces de Syrphidae du genre *Psilota*, observées depuis 2004, sont mentionnées pour la première fois de Belgique : *Psilota anthracina* Meigen, 1822, *P. atra* (Fallén, 1817) et *P. exilistyla* Smit & Vujić, 2008. Les données récentes ainsi que les fleurs visitées sont présentées.

Samenvatting

Nadat in 2004 het zweefvliegengenus *Psilota* voor het eerst voor België gemeld werd, volgden op korte tijd de melding van maar liefst drie soorten (*P. anthracina* Meigen, 1822, *P. atra* (Fallén, 1817) en *P. exilistyla* Smit & Vujić, 2008)! In deze bijdrage wordt een volledig overzicht gegeven van alle tot nu toe gekende waarnemingen van *Psilota* in België met vermelding van bloembezoek.

Introduction

Hoverflies (Syrphidae) are perceived by the public as a group of conspicuous flies that display a colourful variety of bee, bumblebee and wasp mimics. Whereas this description fits relatively well to a large number of species, an important group of inconspicuous dullish black or brown hoverflies (e.g. Cheilosini, Pipizini) also exists. The latter group of syrphids may escape the attention of (mainly non-expert) entomologists and it is often suggested that this may contribute to the apparent rarity of some species that belong to this group.

A typical exponent of the group of inconspicuous hoverflies is the genus *Psilota*. Their habitus is atypical, being more compact and less elegant than most other Syrphidae. Even at closer inspection, the absence of the



Fig. 1. Picture of a female *Psilota anthracina* (25.V. 2005, Rodebos, Ottenburg, Belgium). (Photo F. Van de Meutter).

vena spuria (one of the characters that distinguish most Syrphidae from most other Brachycera) may mislead the observer. In all they are very similar to certain members of the

Table 1: Overview of all Belgian observations of *Psilota* sp. known at 01.V.2012. For each species, observations are listed chronologically.

Species	male	female	Date	Locality	Leg	Collection
<i>P. anthracina</i>		1	07.VI.2004	Jalhay, Belle Croix	B. Wakkie	B. Wakkie
		1(?)	16.V.2005	Arlon, military camp Lagland	J.-Y. Baugnée	J.-Y. Baugnée
		1	25.V.2005	Ottenburg, Rodebos	F. Van de Meutter	F. Van de Meutter
		1	29.V.2005	Waimes, Mont Rigi	W. Renema	W. Renema
		~10	13.V.2008	Oudergem, Rood Klooster	B. Wakkie	B. Wakkie
	1		19.V.2009	Eupen, edge of the Hertogenwald	F. Van de Meutter	F. Van de Meutter
		1	15.V.2010	Engsbergen, garden Achterheide	F. Van de Meutter	F. Van de Meutter
	1		16.V.2010	Lier, Steenbeemden	W. Veraghtert	F. Van de Meutter
		1	29.IV.2011	Tielt-Winge, Walenbos	F. Van de Meutter	F. Van de Meutter
		2	02.VI.2011	Jalhay, Belle Croix	F. Van de Meutter	F. Van de Meutter
		1	02.VI.2009	Engsbergen, garden Achterheide	F. Van de Meutter	F. Van de Meutter
<i>P. atra</i>		1	24.IV.2011	Engsbergen, garden Achterheide	F. Van de Meutter	F. Van de Meutter
<i>P. exilistyla</i>	1		25.V.2009	Hockai	M. Reemer	M. Reemer
	2		26.IV.2012	Engsbergen, garden Achterheide	F. Van de Meutter	F. Van de Meutter

family Lonchaeidae: small to medium sized, shiny blackish flies with reddish eyes, with which they may easily be confused in the field. Although *Psilota*-species are obviously quite rare over much of their range, they also are not easily detected by entomologists focusing on hoverflies. Therefore the number of *Psilota* specimens in collections is low. Because of this, and because of the closely similar appearances of *Psilota* species, taxonomy and distribution of the genus has long remained obscure.

When Luc Verlinden conceived his identification key (VERLINDEN, 1991), only one species of *Psilota* was recognized in Western Europe (*P. anthracina* Meigen, 1822). KASSEBEER (2000) questioned the taxonomic status of *P. anthracina* and suggested that two species were involved: *P. anthracina* and *P. atra* (Fallén, 1817). The work of SMIT & ZEEGERS (2005) confirmed Kassebeer's idea, though it appeared that the names he applied had to be switched, which had already caused some confusion in the literature (e.g. VAN VEEN 2004). Recently, SMIT & VUJIĆ (2008) extended the taxonomic revision of *Psilota* to the whole Palearctic. The large number of taxonomic changes suggested in this revision illustrates the chaos that existed within *Psilota*: four species were synonymized, whereas two new species were described. Five *Psilota* species are now known to occur in Europe: *P. anthracina*, *P. atra*, *P. exilistyla* Smit & Vujić, 2008, *P. innupta* Rondani, 1857 and *P. nana* Smit & Vujić, 2008. Only *P. anthracina* and *P. atra* are

widely distributed within Europe and are known from localities near Belgium (the Netherlands, Western Germany). *P. innupta* is known from Germany, Spain, Sweden and southeastern Europe, whereas *P. exilistyla* and *P. nana* are known from, respectively, Greece and the French Pyrenees and from Serbia and Montenegro.

Psilota species were not included in the most recent official checklist of Belgian Syrphidae (VERLINDEN & DECLEER, 1987). VERLINDEN (1991, 1994), however, placed *P. anthracina* on the Belgian list (in an appendix to his identification keys) with the remark that this species was likely present but not yet discovered in Belgium (VERLINDEN, 1991, 1994). This action was motivated by recent observations in Germany and the Netherlands. However, it would last another 10 years before this long anticipated genus was found in Belgium. In this paper we give an overview of all records of *Psilota* known from Belgium.

Material and methods

The Belgian Syrphidae database at 01.V.2012 contains 11 records of *Psilota* sp. However, several more records were published in on-line newsgroups or were communicated informally to the authors. In order to gather information on these records, the observers have been contacted and requested to provide more details on their finds.

Results

Briefly, 14 records of three *Psilota* species are reported for Belgium until May 2012. Details of all records are given in Table 1 and accounts of the species are given below.

Psilota anthracina Meigen, 1822

So far, *P. anthracina* is the most frequently observed *Psilota* species in Belgium with 11 records since 2004, when it was observed for the first time. Observations range from end of April to early June and are distributed over most of the country, except for the west. All individuals have been found on flowering bushes and trees (see Table 2 for an overview) close to deciduous or mixed woodland. Exceptions are two females that were recorded possibly inspecting potential breeding habitat. One individual was seen flying low above the ground around a stack of wood. Another individual was seen hovering for several minutes in front of a large colony of *Lasius fuliginosus* in a hollow *Castanea sativa* tree.

Table 2: Overview of the flowering plant species visited by *Psilota* sp. of the Belgian records. The number of records that refers to each plant species is indicated between brackets.

Species	Flowers visited
<i>Psilota anthracina</i>	<i>Crataegus</i> sp. (4)
	<i>Rhamnus frangula</i> (1)
	<i>Sorbus aucuparia</i> (2)
	<i>Gleditsia triacanthos</i> (1)
<i>Psilota atra</i>	<i>Acer pseudoplatanus</i> (1)
<i>Psilota exilistyla</i>	<i>Anthriscus sylvestris</i> (1)
	<i>Acer campestre</i> (1)

Psilota atra (Fallén, 1817)

Only one record so far of this species: one female in a garden at the edge of the Gerhaegen reserve at Engsbergen (Tessenderlo) (leg. & coll. F. Van de Meutter) on 24.IV.2011. The Gerhaegen reserve mainly consists of a 800 ha pine wood (dominated by *Pinus nigra* and *P. sylvestris*).

Psilota exilistyla Smit & Vujić, 2008

One male *P. exilistyla* was caught at Hockai on 25.V.2009 along a roadside on flowers of *Anthriscus sylvestris* (leg. & coll. M. Reemer). Two males of *P. exilistyla* were caught on *Acer campestre* on 26.IV. 2012 in a garden at Engsbergen, Achterheide (leg. & coll. F. Van de Meutter).

Discussion

Psilota species have made a remarkable entry in the Belgian fauna. Though they may be easily overlooked, the series of observations since 2004 suggests that this genus has become more common or has only recently established itself in Belgium. A similar trend was observed in Denmark (BYGEBJERG, 2004) and the Netherlands, where observations started somewhat earlier (first observation in 1988, ZEEGERS *et al.* 1989, REEMER *et al.* 2009).

Larvae of *Psilota* species have been found in sap runs under tree bark (KASSEBEER *et al.* 1998). Therefore, it seems likely that they benefit from the maturation and the changing management of our woodlands, where some anomalous trees are spared and dead wood is retained. Other woodland syrphids too, especially the saproxylic ones, have extended their distribution markedly in the Netherlands over the past decades, which has been explained by the same reasons (REEMER, 2005, ZEEGERS & VAN STEENIS, 2009).

The fact that the Belgian specimen of *Psilota atra* was found near a pine forest agrees with the idea of SMIT & ZEEGERS (2005) that the larvae of this species develop in sap runs of pine trees. Their suggestion that *P. anthracina* develops in sap runs of deciduous trees is so far not contradicted by the Belgian observations. However, this is all circumstantial evidence, which needs to be confirmed by rearing records of larvae or pupae.

Many of the observations of *Psilota* are from flowering bushes and trees. The presence of such plants at the right place and in peak of the flight season seems to be a crucial factor for finding (adult) specimens of *Psilota*, as it is for many other woodland Syrphidae (e.g. *Mallota*, *Myolepta*). *Crataegus* species are repeatedly reported as an important feeding plant where adult *Psilota* may aggregate (e.g. SPEIGHT, 2010), and it is also the most common tree on which *Psilota* are found in Belgium. Where *Crataegus* are lacking or have finished flowering early, other trees are used such as *Gleditsia* (in a garden) or *Rhamnus* and *Sorbus* (both on dry and sandy soils where *Crataegus* is lacking).

A surprising find is that of *P. exilistyla*. This species was previously known only from some Greek mountains and from an isolated record in the French Pyrenees. The current record extends the distribution more than 1000 km northwards.

Little is known on the ecology of *Psilota*, though an association with Cerambycidae has been suggested (SPEIGHT, 2010), and it is currently unclear what factors (e.g. tree species, altitudinal range...) determine their distribution. An interesting observation was done for *P. anthracina*, where a female was seen hovering for a long time near a large colony of *Lasius fuliginosus*, as if it was attracted to it. No sap runs were present near this ant colony housed in a dry, hollow tree. The fact that *Psilota* are scarce and are infrequently encountered and collected makes that facts on their distribution and even taxonomy may still considerably change when more records become available.

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