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Description of a peculiar new species of the genus *Platypalpus* Macquart, 1827 (Diptera: Hybotidae) from the Caucasus

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Abstract. *Platypalpus pilifer* Grootaert et van der Weele, **sp. n.** is described from the Caucasus region in Azerbaijan, Georgia and Russia. The species belongs to the *Platypalpus pallidiventris-cursitans* group and is characterised by very long ventral bristles on the spindle-shaped dilated fore tibia in the male. Mid femur in both male and female has a ventral black stripe over the entirely length. An extended diagnosis of the related species *Platypalpus infectus* (Collin, 1926) is given with new illustrations of the male terminalia. It lacks long bristles on the fore tibia. The left epandrial lamella bears a lobe at the right side facing the left cercus and a long lobe at the left side. These distinct lobes are lacking in the new species. In addition numerous spinules are present on the right surstylus in *P. infectus* lacking in the new species.

Key words: Diptera, Hybotidae, *Platypalpus*, new species, Caucasus.

Описание нового своеобразного вида рода *Platypalpus* Macquart, 1827 (Diptera: Hybotidae) с Кавказа

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Резюме. *Platypalpus pilifer* Grootaert et van der Weele, **sp. n.** описан из Азербайджана, Грузии и России. Вид принадлежит к группе видов *Platypalpus pallidiventris-cursitans* и характеризуется очень длинными вентральными щетинками на расширенной веретенообразной передней голени самца. Среднее бедро с вентральной черной полосой по всей длине у обоих полов. Приведен расширенный диагноз родственного вида *Platypalpus infectus* (Collin, 1926) с новыми иллюстрациями терминалий самца. На его передних голенях отсутствуют длинные щетинки. Левая лопасть эпандрия имеет долю с правой стороны, обращенную к левому церку, и длинную долю с левой стороны. Эти отдельные доли отсутствуют у нового вида. Кроме того, на правом сурстиле у *P. infectus* имеются многочисленные шипики, которых нет у нового вида.

Ключевые слова: двукрылые, гиботиды, *Platypalpus*, новый вид, Кавказ.

Introduction

The genus *Platypalpus* Macquart, 1827 is a megadiverse genus with more than 250 species known in Europe but, despite several revisions of the European species during the last century [Collin, 1961; Chvála, 1975, 1989; Grootaert, Chvála, 1992], still new species are regularly found and described [Barták, Kubík, 2015, 2016]. Moreover, many new species were recently described from regions on the eastern border with Europe. Barták and Kubík [2018] described seven *Platypalpus* species from Turkey while Grootaert et al. [2012] and Kustov et al. [2014, 2015] described 14 species predominantly from the northern parts of the Caucasus. Less *Platypalpus* species have been recorded from the southern part of the Caucasus region [Kovalev, 1967; Shamshev, 2016]. Seven species are known from Georgia: *P. albiseta* (Panzer, 1806), *P. caucasicus*

Kovalev, 1967, *P. ciliaris* (Fallén, 1816), *P. exilis* (Meigen, 1822), *P. longiseta* (Zetterstedt, 1842), *P. luteolus* (Collin, 1926) and *P. pectoralis* (Fallén, 1815). *Platypalpus infectus* (Collin, 1926) was the only species known from Azerbaijan, but as it will be shown, the *P. infectus* reported from the Caucasus all belong to the new species described here and we doubt that the true *P. infectus* is present in the Caucasus at all.

In the present paper a remarkable new species belonging to the *P. pallidiventris-cursitans* species-group is described from the Caucasus, more precisely from Azerbaijan, Georgia and Russia. The new species was originally recorded by Kustov et al. [2015] as *Platypalpus infectus* but comparison with ample material of true *P. infectus* from western Europe showed that the new species is entirely different. Hence we give here illustrations of the two species and an adapted key.

Material and methods

Material from Azerbaijan and Georgia was recently collected by net sweeping of vegetation by Jozef Oboňa and Peter Manko. Specimens are conserved in 70% ethanol in the collections of the Royal Belgian Institute of Natural Sciences (RBINS, Brussels, Belgium), Ruud van der Weele (RvdW, Zoelmond, Netherlands), Naturalis Biodiversity Center (RMNH, Leiden, Netherlands), Sven Hellqvist (SH, Umeå, Sweden). In addition the collection of Dr S.Yu. Kustov at the Department of Zoology, Kuban State University (KSU, Krasnodar, Russia) and the collection of the Zoological Institute of the Russian Academy of Sciences (ZIN, St Petersburg, Russia) were reviewed.

For the terminology of the morphology we refer to Grootaert and Shamshev [2012].

Family Hybotidae Meigen, 1820

Subfamily Tachydromiinae Meigen, 1822

Genus *Platypalpus* Macquart, 1827

Platypalpus pilifer Grootaert et van der Weele, sp. n.

(Figs 1, 2)

Material. Holotype, ♂ (RBINS): Azerbaijan, Zaqatala District, tributary of the Talacay River, 41°40'40.7"N / 46°41'57.9"E, 950 m a.s.l., from rocks and tree trunks, 9.05.2019 (P. Manko). Paratypes: Azerbaijan: 1♂, 1♀ (ZIN), Pirkuli, 22 km N Shemachi, forest, 20.05.1972 (V. Richter) (ZIN); 2♀ (ZIN), Kahi, 26.05.1978 (V. Richter); 2♂ (RMNH), Şəki District, Kish resort garden, 41°14'41.3"N / 47°11'23.6"E, 905 m a.s.l., from walls of buildings and tree trunks, 5.05.2019 (J. Oboňa); 1♂, 2♀ (KSU), Şəki District, Şəki, Quirxbulac, small tributary of the Ayrychay River, 41°08'51.6"N / 47°15'38.0"E, 650 m a.s.l., from rocks and tree trunks, near bush, 6.05.2019 (J. Oboňa); 2♀ (RvdW), Qabala District, tributary/sidebrook of the Demiraparanchay River, below Durca, 41°02'16.1"N / 47°53'12.2"E, 1310 m a.s.l., close to the resort, steep small brook (mesolihal) in forest/meadow area + small pond, from rocks and tree trunks, 10.05.2019 (J. Oboňa). Georgia: 1♂ (RBINS), Kakheti Region, Khornabuji, Eagle Gorge, 41°29.375'N / 46°05.857'E, 750 m a.s.l., from rocks and tree trunks, 4.05.2019 (J. Oboňa). Russia: Republic of Dagestan: 1♂ (ZIN), Terekli-Mekteb, 16.05.1972 (V. Richter); Republic of Adygea: 2♂ (KSU), Teuchezhskiy District, Tlustenhabl, bank of Kuban River, 2.05.2010 (V. Gladun); Krasnodar Region: 4♂, 3♀ (KSU), Goryachiy Klyuch District, Oktyabrskiy env., 25.04.2010 (S. Kustov); 3♂, 4♀ (KSU, ZIN), Krasnodar, Vostochno-Kruglikovskiy, 15.04.2013 (S. Kustov); 7♂, 2♀ (KSU, ZIN), Krasnodar, park 30 let Pobedy, 21.04.2013 (S. Kustov); 1♀ (KSU), Abinsk District, Shapshugskaya env., bank of Adegoy River, 2.05.2013 (S. Nesterenko); 1♀ (KSU), Anapa District, Utrish Nature Reserve, Dolgaya Niva natural boundary, 17.04.2014 (S. Kustov); 2♂ (KSU), same data, 28.04.2014 (S. Kustov); 3♂ (KSU), Anapa District, Utrish Nature Reserve, 28.04.2014 (S. Kustov).



Fig. 1. *Platypalpus pilifer* sp. n., male, holotype.
Рис. 1. *Platypalpus pilifer* sp. n., самец, голотип.

Description. Male (Figs 1, 2). Body length 3.2–3.8 mm; wing length 3.7–3.8 mm.

Head. Black in ground-colour. Frons just below ocellar triangle 2 times as wide as front ocellus, narrowing toward base of antenna, grey dusted (in dorsal view). Face as wide as frons in front, silvery grey dusted including clypeus. A pair of short pale anterior ocellar bristles, shorter than verticals, a pair of minute posterior ocellars. Antenna black. Postpedicel elongate triangular, almost 2.5 times as long as wide. Arista 1.5 times as long as third segment. Postocular bristles pale, short above, longer below and some bristles near neck more dusky. Palpus brown in ground-colour, covered with long white fine bristles, a long white subapical bristle nearly twice as long as palpus. Proboscis shiny black, 3/4 eye height.

Thorax. Black in ground-colour, entirely thinly grey dusted and covered with pale hairs and bristles. One thin short humeral; acrostichals biserial, rather long, rows close together, diverging; dorsocentrals mostly as long as acrostichals, uniserial, becoming longer along prescutellar depression, rows ending in 1–2 long prescutellar. Two notopleural bristles with some shorter bristles aside, but no anterior notopleural (= posthumeral) bristle present. Scutellum with a pair of strong long apical bristles and a bristle at each side finer, nearly half as long as apicals. Pleura grey dusted, sternopleura polished.

Wing (Fig. 1) with hyaline membrane, apical half with a brownish hue. Costa yellowish at base, becoming dark brown just before tip. Vein R_1 yellowish, tips of R_{2+3} , R_{4+5} and M_1 dark brown. Crossveins separated but nearly contiguous. Vein closing anal cell straight, perpendicular on anal vein. Anal vein pale at base, disappearing in apical half and thus not reaching wing border. Bristling on costa pale at extreme base farther becoming darker. Pair of long pale basal costal bristles.

Squama white with long white cilia. Haltere entirely white.

Legs yellow including all coxae. Black parts are: border where mid and hind coxae are attached on thorax, border of apex of trochanters; mid femur with black stripe along the double row of ventral spinules; sides of mid and hind knees black; tip of mid tibial spur and sharply black annulated tarsomeres. Fore tarsomere 1 (basitarsus) is entirely yellow and tips of mid and hind tarsomere 1 are faintly brown.

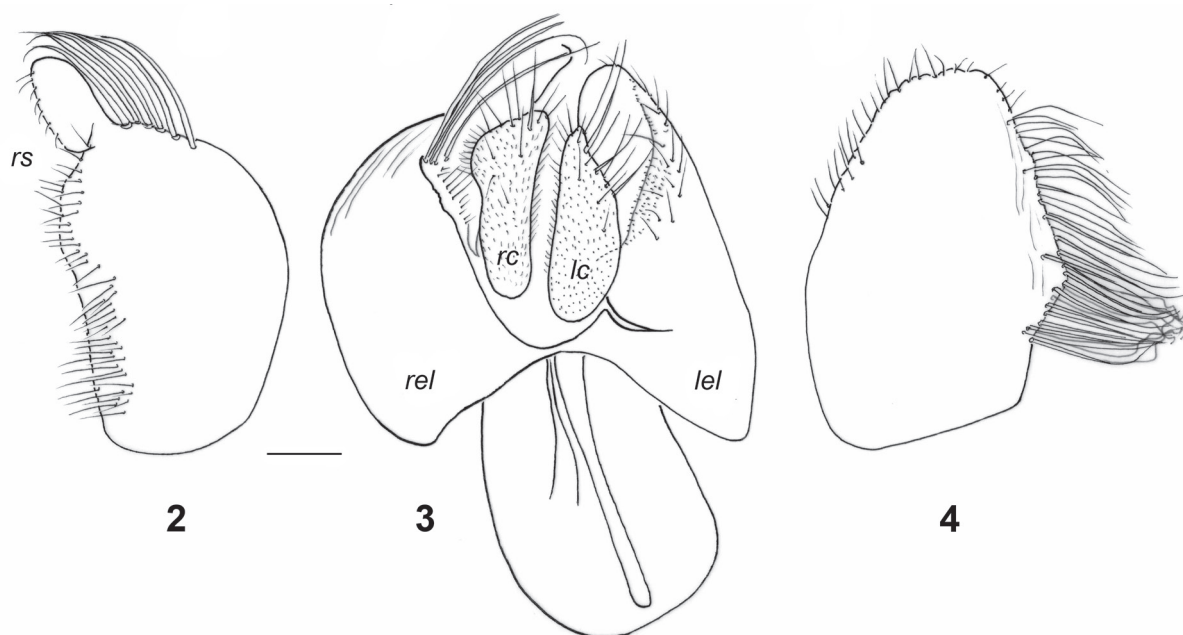
Fore leg. Coxa densely set with white bristles. Fore femur much swollen, ventrally with a double row long white fine bristles, most about as long as femur is wide. Fore tibia spindle-shaped dilated, half as wide as femur; dorsally with some brownish bristles and with numerous long ventral and very long anteroventral and posteroventral fine bristles (at tip nearly 3 times width of tibia). Tarsomere 1 with 4–5 very long posteroventral bristles (similar to posteroventral bristles on fore tibia).

Mid leg. Coxa densely set with long white bristles. Trochanter with a single more dusky long ventral bristle. Mid femur very strong, about 1.5 times as wide as fore femur and 2 times as wide as hind femur; some longer anterior white bristles near tip, numerous posteroventral bristles, a little longer than half width of femur. A long pointed spur on tibia with black tip.

Hind leg. Coxa with white apical bristles. Femur narrow, posterodorsally and ventrally densely set with pale fine bristles about as long as femur is wide. Tibia also dorsally and ventrally densely set with fine white bristles as long as tibia is wide and a dorsal row of five black bristles as long as tibia is wide.

Abdomen. Shiny black but tergites 1 and 2 with a small grey dusted patch at sides, further entirely set with white bristles.

Male terminalia globular (Fig. 2). Cerci short, concealed in epandrial lamellae. Right cercus with widened apex, left cercus pointed (Fig. 3). Left epandrial lamella with truncate rounded tip and left border with small protuberance below middle. Left border set with long pale bristles, those below longest with somewhat entangled tips (Fig. 4).



Figs 2–4. *Platypalpus pilifer* sp. n., male terminalia, holotype. 2 – right epandrial lamella; 3 – epandrium with cerci; 4 – left epandrial lamella. *lc* – left cercus; *lel* – left epandrial lamella; *rc* – right cercus; *rel* – right epandrial lamella; *rs* – right surstylus. Scale bar 0.1 mm.

Рис. 2–4. *Platypalpus pilifer* sp. n., терминалии самца, голотип.

2 – правая лопасть эпандрия; 3 – эпандрий и церки; 4 – левая лопасть эпандрия. *lc* – левый церк; *lel* – левая лопасть эпандрия; *rc* – правый церк; *rel* – правая лопасть эпандрия; *rs* – правый сурстиль. Масштабная линейка 0.1 мм.

Female. Body length 4–4.6 mm; wing length 4.3–4.6 mm. In most respects similar to male. Tergites and sternites with pale yellow hairs, denser laterally. Apical two segments and cerci dusted.

Fore femur with shorter bristles ventrally. Fore tibia only weakly spindle-shaped with posteroventral bristles much shorter than in male and fore basitarsus covered with only short bristles.

Diagnosis. A medium-sized black species (3.2–4.6 mm) of the *P. pallidiventris-cursitans* group with a single pair of short pale vertical bristles, close together (about 1.5 times as wide as frons below anterior ocellus). Antenna black with third antennal segment 2.5 times as long as wide, arista 1.5 times as long as third segment. Humeral bristle present but short and thin. Acrostichals biserial. Legs yellow including all coxae. Tarsi distinctly annulated black. Male with fore tibia spindle-shaped dilated with numerous long ventral and very long anteroventral and posteroventral fine bristles. Mid femur much thickened with pale posteroventral bristles and a ventral black stripe upon which the double row of spinules are inserted. Mid tibia with long, pointed apical spur. Abdomen entirely shiny black, anterior two tergites with small lateral patches of greyish pollinosity.

Habitat. The new species was found in a wide variety of habitats on one hand rather anthropogenic habitats like gardens in a city and an orchard as well on vegetation along a stream (Figs 5, 6). All specimens were collected from rocks or walls of buildings and tree trunks.

Distribution. Recorded from the Caucasus (Azerbaijan, Georgia and Russia).

Etymology. The name *pilifer* alludes to the presence of the long ventral bristles on the male fore tibia.

Notes. We classify *Platypalpus pilifer* sp. n. in the *P. pallidiventris-cursitans* group, though the presence of a weak humeral bristle and the thinly dusted mesonotum (seen on dried specimens) would classify *P. pilifer* sp. n. in the *P. minutus* group.

The *pallidiventris* group is a very large group while the *P. minutus* group contains only a few species and is probably a part of the *P. pallidiventris-cursitans* group. Using the key for the Caucasian *Platypalpus* in Kustov et al. [2015] only three species belong to the *minutus*-group: *P. minutus* (Meigen, 1804), *P. pseudociliaris* and *P. ruficornis* (von Roser, 1840). The latter two species have the posterior part of the mesonotum polished while *P. minutus* has the mesonotum thinly dusted except for a median shiny stripe. In addition, the fore tibia in *P. minutus* bears an apical brown rim, absent in the new species described here. None of these species of the region have a very thickened spindle-shaped fore tibia with very long pale ventral bristles. In addition, the black ventral stripe of the mid femur is also a rare characteristic in *Platypalpus*.

If one considers the dusting of the mesonotum as dense and considers that the humeral bristle is strong and distinct, the new species will lead in the key of Kustov et al. [2015] to *P. infectus* (Collin, 1926). In that species the antenna is entirely black, the clypeus is dusted and the vertical bristles are not wide apart (at most 1.5 times the width of the frons below the anterior ocellus). In addition the fore tibia is swollen and the mid femur is very thickened in both species. However, the true *P. infectus* has only short ventral bristles on the swollen fore tibia, shorter than the tibia is wide, weakly annulated tarsomeres, there is generally a distinct anterior notopleural bristle, the



Figs 5–6. Habitat of *Platypalpus pilifer* sp. n.
5 – on walls of buildings and tree trunks in Azerbaijan; 6 – on rocks and tree trunks in Georgia. Photographs by Dávid Murányi.

Рис. 5–6. Местобитания вида *Platypalpus pilifer* sp. n.
5 – на стенах зданий и на стволах деревьев в Азербайджане; 6 – на скалах и на стволах деревьев в Грузии. Фотографии Дэвида Мурани.

humeral bristle is stronger, there is no black ventral stripe on the mid femur and the male terminalia are different in many distinct characters as can be seen in the notes below on *P. infectus*.

In the key of Caucasian *Platypalpus* [Kustov et al., 2015] the new species can be included instead of *P. infectus* as follows:

- 22(21). Clypeus polished black. Postpedicel about 2.5 times longer than wide. Mid femur without a ventral black stripe. Tarsomeres of all legs broadly sharply black annulated. Abdomen black, entirely shiny
- *P. arzanovi* Kustov, Shamshev et Grootaert, 2014 – Clypeus grey dusted 23
- 23(22). Fore tibia with very long (nearly 3 times width of tibia at apex) anteroventral and posteroventral fine bristles. Mid femur with a ventral black stripe
- *P. pilifer* sp. n.

Platypalpus infectus (Collin, 1926)
(Figs 7–11)

Tachydromia infecta Collin, 1926: 157 (type localities: Newmarket, Suffolk; Brighton, Sussex (UK)); Collin, 1961: 151 (diagnosis, fig. 52c (head)).

Platypalpus infectus: Chvála, 1975: 176 (redescription, figs 133 (antenna), 222 (mid femur and tibia), 437–440 (male terminalia), 723 (wing); Chvála, 1989: 314 (diagnosis); Grootaert, Chvála, 1992: 38 (key); Kustov et al., 2015: 456 (misidentification).

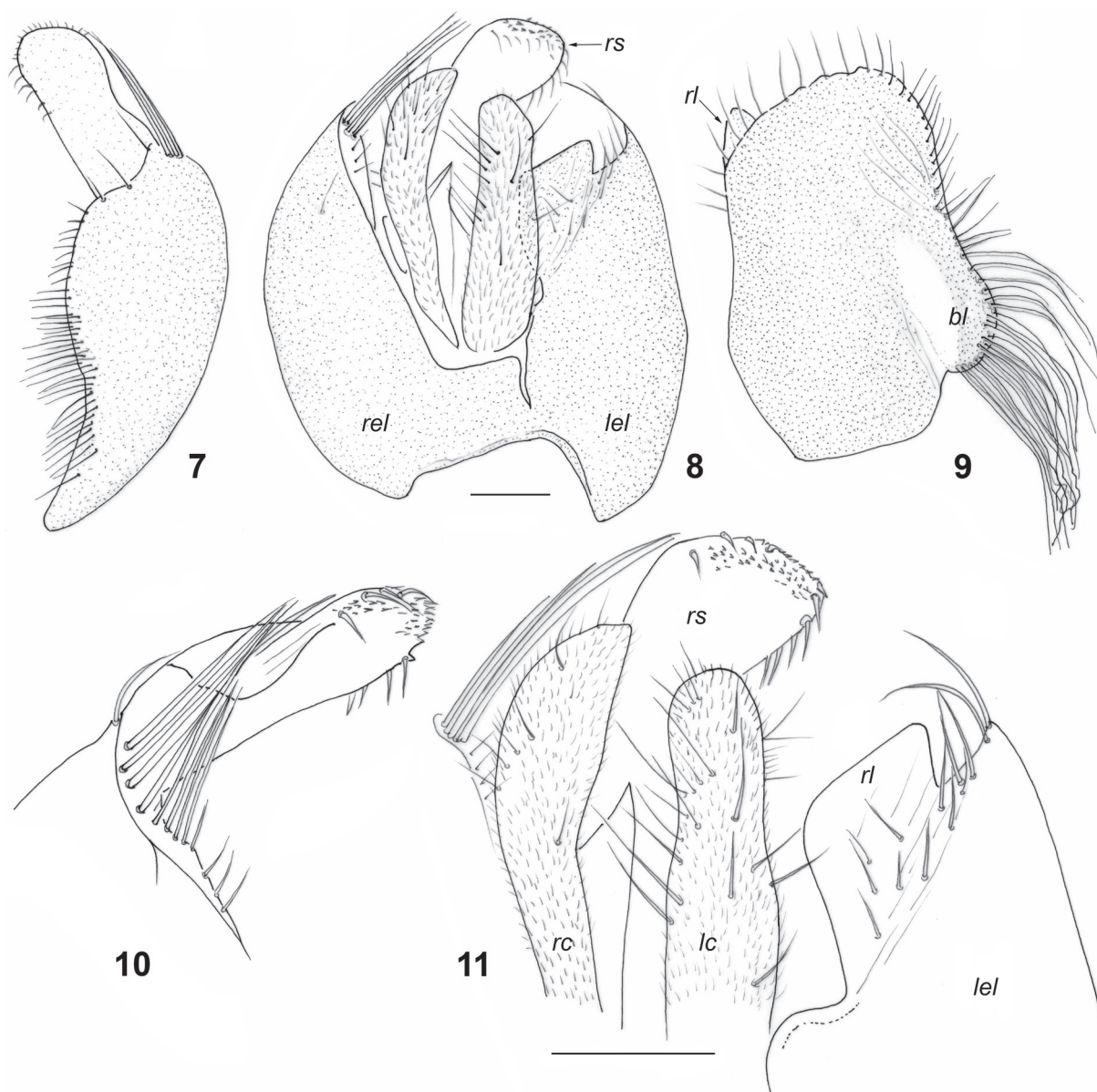
Material. Belgium: 4♂, 5♀ (RBINS), Melle, Malaise trap in meadow, 27.05–3.06.1986 (M. Pollet); 16♂, 13♀ (RBINS), Melle, Malaise trap in meadow, 10–17.06.1986 (M. Pollet); 15♂, 4♀ (RBINS), De Blankaart, Malaise trap, 16.06.1986 (B. Goddeeris); 18♂, 13♀ (RBINS), Melle, Malaise trap in meadow, 26.06–1.07.1986 (M. Pollet); 3♂ (1♂ dissected and figured (Figs 7–11)), 2♀ (RBINS), West-Flanders, De Blankaart, Malaise trap, 31.07.1986 (B. Goddeeris). In addition 299 specimens (178♂, 121♀) are present at RBINS from 13 localities all over Belgium.

Sweden: 2♀ (SH), Medelpad, Torpshammar, Boda, pan trap, 26.06–16.07.2012 (S. Hellqvist); 1♀, 2♂ (SH), Skåne, Simrishamn, Ö Herrestad, pan trap, 20.07–5.08.2012 (E. Nilsson); 1♂ (SH), Ånge, Nyänget, pan trap, 4.07–3.08.2018 (E. Olofsson); 1♀ (SH), Gotland, Buttle, Nordkalk, Malaise trap, 10.07–1.08.2018 (N. Johansson).

Netherlands: 1♀ (RvdW), Zeeland, Sirjansland, 51°40'47.1"N / 4°0'54.0"E, 27.07.2011 (W. van Steenis); 1♀ (RvdW), Zeeland, Middelburg, 51°29'23.1"N / 3°35'21.8"E, Malaise trap, 25.07.2012 (E. de Bree); 1♀ (RvdW), Zeeland, Rilland, 51°25'19.7"N / 4°13'16.5"E, 12.06.2015 (N.-J. Dek); 1♂ (RvdW), Groningen, Warffum, 53°23'49.3"N / 6°33'15.2"E, 16.09.2013 (R. van der Hout).

Diagnosis. A medium-sized black species (2.9–3.4 mm) of the *P. pallidiventris-cursitans* group with a single pair of yellowish vertical bristles, close together (about 1.5 times as wide as frons below anterior ocellus). Antenna black with third antennal segment 2.5 times as long as wide, arista at least 1.5 times as long as third segment. Mesonotum thinly dusted with all hairs and bristles pale. Humeral bristle present. Acrostichals biserial. Usually a distinct anterior notopleural bristle present. Legs yellow including all coxae. Tarsi weakly annulated brownish. Male with fore tibia spindle-shaped dilated ventrally with fine ventral bristles, shorter than tibia is wide. Fore tibia in female only weakly dilated. Mid femur much thickened with long pale posteroventral bristles, half as long as femur is wide. Mid femur lacking a ventral black stripe upon which the double row of spinules are inserted. Mid tibia with a long pointed spur. Abdomen shiny black but tergites 1 and 2 with a small grey dusted patch at base. Tergites and sternites with pale bristles. Male terminalia globular (Figs 7–11), but more elongated than in *P. pilifer* sp. n. Right cercus with a slender pointed apex, left cercus digitiform, with a rather rounded tip, with a few long bristles at right side well below the apex. Left epandrial lamella with a lobe on the right side (Figs 8, 11: *rl*) and a long basal lobe at the base (Fig. 9: *bl*). This lobe is set of the rest of the left epandrial lamella with a weakly melanised area and bears very long bristles with entangled tips. Right surstylus bearing numerous small spinules at the interior side of the apex (Figs 10, 11).

Notes. *Platypalpus infectus* is a smaller species than *P. pilifer* sp. n. It differs in many characters from the new species as discussed above. The presence of tooth-like spinules on the apex of the right surstylus in addition of some short bristles (Fig. 11) is remarkable and perhaps unique in *Platypalpus*. The left epandrial lamella bears a lobe at the right side (facing the left cercus Figs 8, 11: *rl*). Such lobe was also figured by Chvála [1975: fig. 439] and is also probably



Figs 7–11. *Platypalpus infectus*, male terminalia.

7 – right epandrial lamella; 8 – epandrium dorsally; 9 – left epandrial lamella; 10 – detail of right surstylus; 11 – detail of apices of right and left cercus with apex of left epandrial lamella moved to the left side. *bl* – basal lobe; *lc* – left cercus; *lel* – left epandrial lamella; *rc* – right cercus; *rel* – right epandrial lamella; *rl* – right lobe; *rs* – right surstylus. Scale bars 0.1 mm.

Рис. 7–11. *Platypalpus infectus*, терминалии самца.

7 – правая лопасть эпандрия; 8 – эпандрий, вид сверху; 9 – левая лопасть эпандрия; 10 – строение правого сурстиля; 11 – вершины правого и левого церков и вершина левой лопасти эпандрия, с левой стороны. *bl* – базальная доля; *lc* – левый церк; *lel* – левая лопасть эпандрия; *rc* – правый церк; *rel* – правая лопасть эпандрия; *rl* – правая доля; *rs* – правый сурстиль. Масштабные линейки 0.1 мм.

quite unique in *Platypalpus*. Both these structures are not present in *P. pilifer* **sp. n.** The right surstylus has a curious fold as shown as well by Chvála [1975: fig. 438] and here in Fig. 10. No such bent is present in the new species. The left epandrial lamella bears a lobe at the base of the left side. Such a lobe is not figured by Chvála [1975: fig. 440] but this is probably due to the position when drawing. This lobe was present in the numerous specimens from Belgium which we studied. In *P. pilifer* **sp. n.** the basal lobe is not present, however there is a small protuberance on the left side of the left epandrial lamella that is not distinctly set-off.

Distribution. The species from lowland is known with certainty from western Europe [Chvála, 1975]. The records from the eastern part of Europe might be doubtful and need verification. All the records of *P. infectus* in Kustov et al. [2015] are *P. pilifer* **sp. n.**, they are considered as paratypes of the new species and included in the type series.

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Dr Sven Hellqvist confirmed the morphology of the male terminalia from Swedish *P. infectus*. Thanks are due to all anonymous reviewers for their valuable and instructive comments on the manuscript, especially by showing the need of a re-diagnosis of *P. infectus* to avoid confusion.

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