

European species of the *Platycheirus ambiguus* group (Diptera, Syrphidae), with description of new species

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The following species are described as new to science: *P. altomontis* **spec. nov.**, *P. brunnifrons* **spec. nov.**, *P. caesius* **spec. nov.**, *P. clausseni* **spec. nov.**, *P. goeldlini* **spec. nov.**, *P. meridimontanus* **spec. nov.** and *P. subambiguus* **spec. nov.** The female *P. transfugus* (Zetterstedt, 1838) is described. A key is presented for the species of the group known from Europe.

Key words: *Platycheirus ambiguus* group, Europe, new species, key, Syrphidae.

Zusammenfassung

Sieben bisher unbekannte Arten der *Platycheirus ambiguus*-Gruppe werden aus Europa beschrieben: *P. altomontis* **spec. nov.**, *P. brunnifrons* **spec. nov.**, *P. caesius* **spec. nov.**, *P. clausseni* **spec. nov.**, *P. goeldlini* **spec. nov.**, *P. meridimontanus* **spec. nov.** und *P. subambiguus* **spec. nov.** Darüber hinaus wird ein Bestimmungsschlüssel für alle aus Europa bekannten Arten der Gruppe vorgelegt.

Introduction

In his revision of the Nearctic *Platycheirus* Vockeroth (1990: 663) summarizes the characters of the males of the *ambiguus* group: slender legs and a row of stiff black setae postero-laterally on the fore femur. The apical seta is longer and with the tip strongly curved. The face is nearly vertical, uniformly pruinose except on the facial tubercle and without a keel between the antennal bases. He also discusses the Nearctic species and gives additional characters for some of the species.

Up till now five species of this group have been known from Europe: *P. abruzzensis* (van der Goot, 1969), *ambiguus* (Fallén, 1817), *immaculatus* Ôhara, 1980, *lundbecki* (Collin, 1931) and *transfugus* (Zetterstedt, 1838). Vockeroth (op.cit.) reports three species from North America, *P. coerulescens* (Williston, 1887), *kelloggi* (Snow, 1895) and *lundbecki*. Nine species of the *ambiguus* group are known from the East Palaearctic.

The present paper adds seven new species to the European fauna. The species have been compared with type material of East Palaearctic and Nearctic species. *Platycheirus brunnifrons* **spec. nov.** has a wide distribution and occurs also in northeastern Russia

(Magadan and Yakutia) and in North America (Alaska). Some of the species diverge a little in some of the general characters of the group. In some species the apical half of fore femur has a row of long, soft bristly hairs (not stiff straight setae) posteriorly, after the apical curled bristle, and the face of *P. altomontis* sp. nov. is rather protruding.

The material studied includes also a number of females. Unfortunately the females of only some of the species are at present separable, the rest will have to await the availability of additional material.

Material and methods

The material studied is deposited in the following museums and private collections: BMNH: British Museum Natural History, London; CCF: Claus Claussen, Flensburg; CEUA: Collection of Entomology of the Alicante University; DBNS: Department of Biology and Ecology, Univ. of Novi Sad; DDM: Dieter Doczkal, Malsch; FMNH: Finnish Museum of Natural History, Helsinki; HBJ: Hans Bartsch, Järfälla; JHS: Jens-Hermann Stuke, Leer; JLR: J.W. Lucas, Rotterdam (now ZMA); MDV: Mauro Daccordi, Verona; MHNG: Muséum d'histoire naturelle, Genève; MNB: Museum für Naturkunde, Humboldt-Universität zu Berlin; NMW: Naturhistorisches Museum, Wien; MZL: Musée Zoologique, Lausanne; NRS: Naturhistoriska Riksmuseet, Stockholm; RTF: Reinhold Treiber, Ihringen (now DDM); SSK: Süleyman Saribiyik, Kastamonu; SMNS: Staatliches Museum für Naturkunde Stuttgart; TMF: Thomas Merlin, Freiburg; TNS: Tore R. Nielsen, Sandnes; VMK: Valeri Mutin, Komsomolsk-na-Amure; ZISP: Zoological Institute, St. Petersburg; ZMA: Zoölogisch Museum, Amsterdam; ZMB: Zoological Museum, Bergen; ZML: Zoological Museum, Lund; ZMN: Zoological Museum, Novosibirsk.

Biometry: the body length was measured from anterior end of frons to apex of abdomen. The length of tergite 2 was measured along the median line, the breadth at base of the tergite.

Description of species

Platycheirus abruzzensis (van der Goot, 1969) (figs 1a-g)

Melanostoma abruzzense van der Goot, 1969: 94

Material studied: Male holotype and female allotype dated "Funivia, Gran Sasso 1200-1300 m 24-VII – 1-VIII 1960", "Italia, Abruzzi. Prov. Aquila, V.S.v.d.Goot" (in coll. ZMA) and male, female paratypes (in coll. TNS).

Additional material: "Tirolis, Stilfser-Joch. 1871, Mik" 1♂ (in coll. NMW). – Switzerland: Suisse-Valais, Spielboden Saas-Fee 29.VII.1985 5♂; same locality 2.VIII.1986 1♀; Suisse-Valais, Gletscheralp Saas-Fee 6.VIII.1986 1♂; Suisse-Valais, Saas-Fee, Plattjen 1.VIII.1985 1♀ and 13.VIII.1987 1♀; Suisse-Valais, Hannig 4. VIII.1985

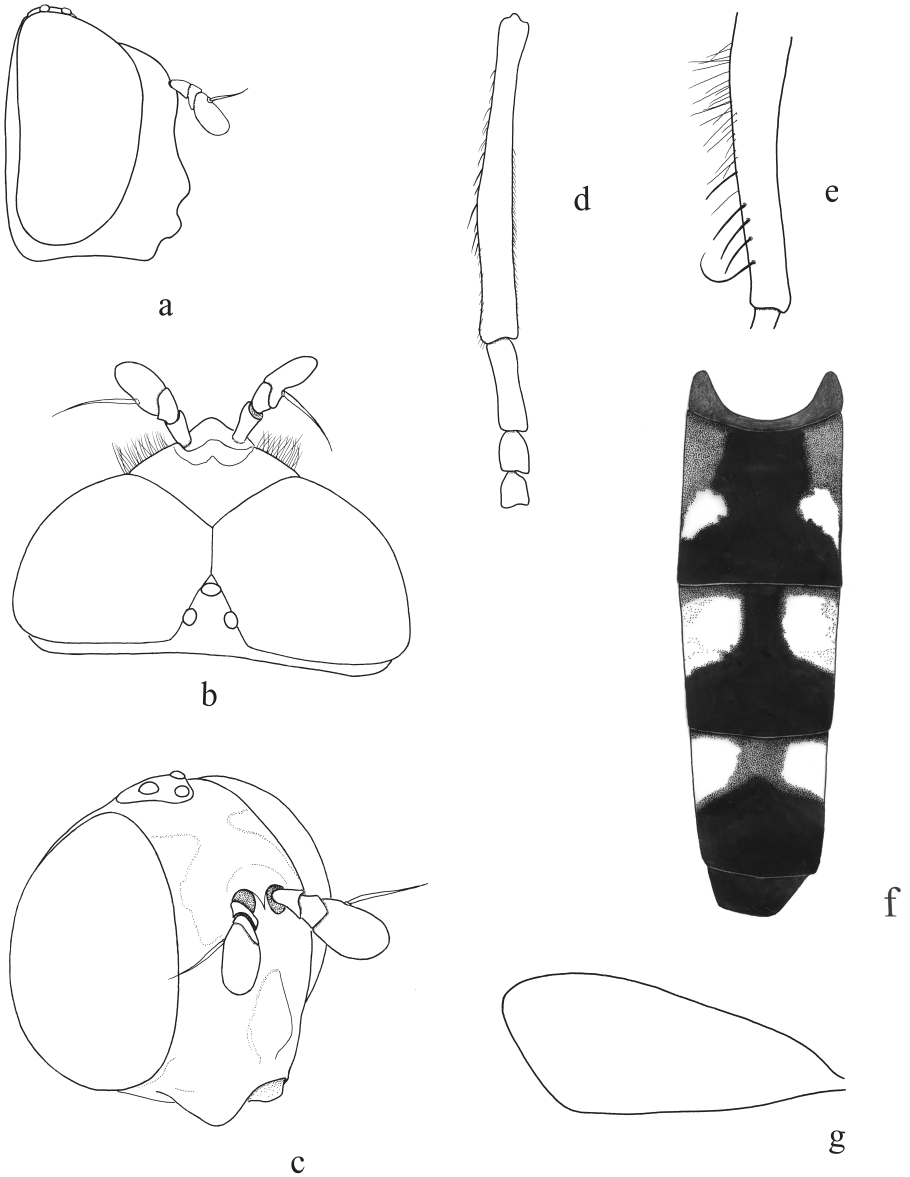


Fig. 1: *Platycheirus abruzzensis* (van der Goot). – a: head in profile, male holotype; – b: head in dorsal view, male paratype; – c: head, female paratype; – d: right fore leg, male holotype; – e: right fore femur, do; – f: abdomen, do; – g: alula, male.

1 ♀; Suisse-Valais, Cols de Cou et Bretolet 1900 m 27.7.1970 1 ♀; Suisse-VS, Saas-Fee 17.VII.1990 1 ♀ and 27.VII.1990 1 ♀, all leg. P. Goeldlin (in coll. MZL, male and female in coll. TNS). – Italy: dint. Sant. Oropa (VC) M. Mocrone a 2000 m, 18.VII.1989 1 ♂, leg. Daccordi (in coll. MDV).

Diagnosis: rather long abdomen with oblique, yellow spots on tergite 2-4. Scutum and scutellum shiny metallic bluish, which contrasts with the black ground colour of the abdomen. Male fore tibia postero-laterally short haired, or with 1-2 very short setae only.

Body length: male 7.8-8.4 mm, female 6.8-8.3 mm. Wing length: male 6.7-7.0 mm, female 5.7-6.9 mm.

Discussion: *P. abruzzensis* may be confused with *P. transfugus*. Both species have orange yellow abdominal markings, but *P. abruzzensis* differs from the latter in a slightly larger and slimmer body and a longer abdomen. The setae postero-laterally on the male fore femur are stronger, and their tips end more bluntly in *abruzzensis* (the setae are hair-like with fine tips in *transfugus*). In the female the 2nd tergite is as long as or slightly longer than broad in *abruzzensis*, while it is broader than long in *transfugus*.

The males of *P. abruzzensis*, *P. meridimontanus* sp. nov. and *P. transfugus* differ from other species of the group in the normal lack of long setae-like hairs posteriorly on the fore tibia. *P. abruzzensis* is also compared with *P. meridimontanus*, see under diagnosis of the latter.

Preferred environment: an alpine species, found between 1200-1300 m (Abruzzi) and 1900 m (Valais). Flight period: 18 July-13 August. – Distribution: mountains in Switzerland and Italy.

Platycheirus altomontis Merlin & Nielsen **spec. nov.** (figs 2a-h)

Type material: Holotype, Italy, ♂, labeled "Italia, Passo Stelvio (SO) M. Scorluzzo, 3000-3090 m 20.7.1998 leg. T. Merlin" and holotype label (in coll. SMNS). Paratypes: 11 ♂ with same locality data, 20th or 24th July 1998 and paratype labels (in coll. TMF, DDM and TNS).

Etymology: *altus* (Latin) means high, and *montanus* mountain.

Diagnosis: a small to medium sized species with bluish, somewhat roundish rectangular abdominal spots. The eyes touch for a very short distance only, scarcely as long as the distance between the hind ocelli. Front tibia postero-laterally with long, black setae, the longest are at least as long as twice the thickness of tibia. *P. altomontis* is much alike *P. caesius* spec. nov., see below.

Description:

♂: Head: Eye suture very short, only just as long as distance between the hind ocelli. Eye angle about 105°. Antennae blackish brown. Frons and face bluish black with light

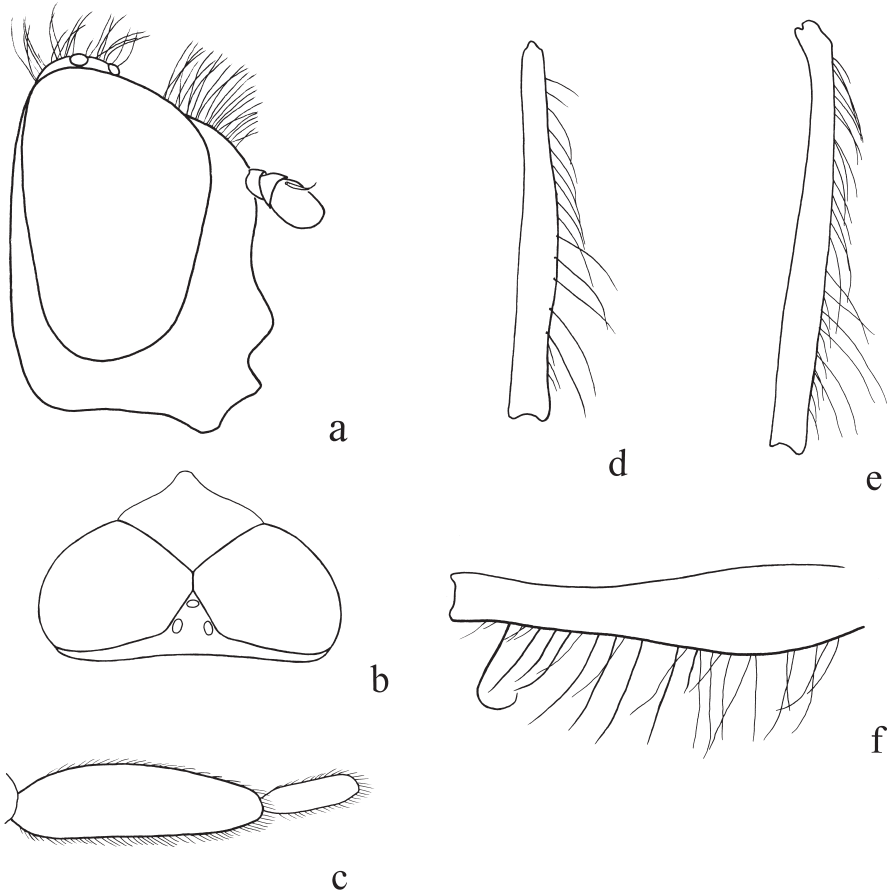


Fig. 2 a-f: *Platycheirus altomontis* spec. nov. – a: head in lateral view, male holotype; – b: head in dorsal view, male paratype; – c: hind basitarsus; – d: fore tibia, male paratype; – e: mid tibia, male paratype; – f: fore femur, male paratype.

whitish dusting, more densely dusted below the antennae and on lower part of face along eye margins. Jowls shining bluish black, almost undusted. Dorsal part of occiput somewhat shining, ventral half more heavily white dusted downwards. Frons and face black-haired, occiput mainly with white or yellow hairs. – Thorax: Scutum, scutellum and pleurae shining bluish black, lightly white dusted and with rather long yellowish white dusting. – Wing: hyaline and microtrichose, but bare on about basal 2/3 of 2nd costal cell and on 1st and 2nd basal cell, and on anterior 1/3 of anal cell. Calypter white yellow, the rim somewhat darkened. Haltere light yellow brown, the tip of the knob a little darker. – Legs: all legs black with whitish dusting, but extreme apices of femora

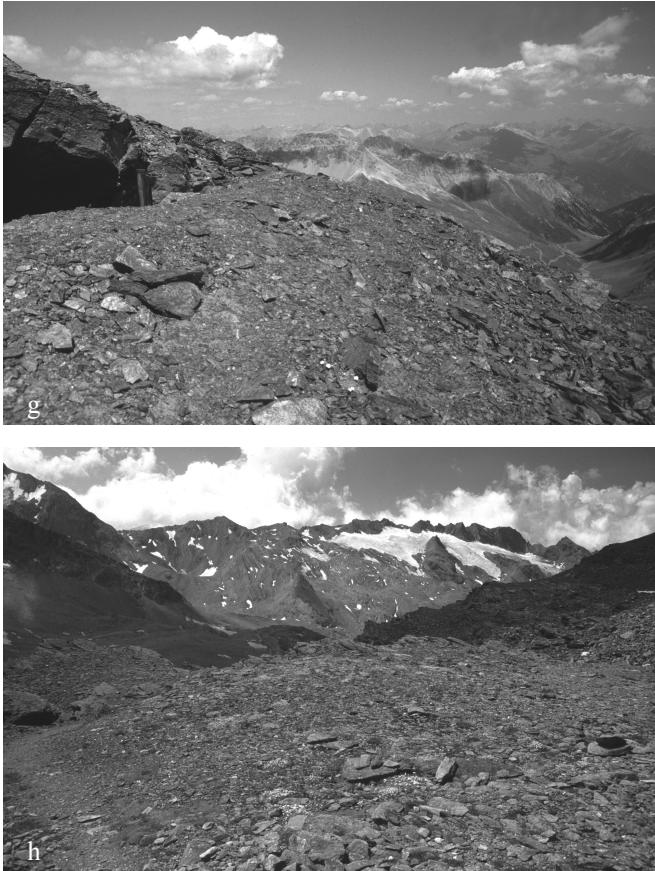


Fig. 2 g-h: Habitat of *Platycheirus altomontis* spec. nov. – g: View from Mt. Scorluzzo. Rocky slopes on which *P. altomontis* were found sunbathing. In the background the Swiss Alps; – h: Flower variety on Mt. Scorluzzo. – Photos: T. Merlin, 20.07.2003.

and basal 1/4 -1/3 of tibiae yellowish brown. Fore and mid femora postero-laterally with a row of long, mainly black hair-like bristles, their apices are soft. Fore and mid tibiae postero-laterally with black, hair-like bristles. Hind basitarsus swollen, about 1.5x thicker than apex of tibia. – Abdomen: Tergites and sternites shining bluish black, the pile mainly white. Tergite 2-4 with steel blue, thinly white pollinose spots.

Body length: 6.3-8.2 mm. Wing length: 5.5-7.0 mm.

♀: unknown.

Preferred environment: Thomas Merlin, Freiburg, collected this new species on a rocky slope of Monte dello Scorluzzo (3094 m). The mountain is almost without vegetation, with only a few isolated plants on less wind-exposed places. The specimens, all males, were found sunbathing at the summit of the mountain, an area almost only with stones and rocks. They were numerous, a hundred or more, but were difficult to catch as many of them were sitting on sheltered spots in-between the stones. – Distribution: still only known from the type locality in the Italian Alps.

Platycheirus ambiguus (Fallén, 1817) (figs 3a-f)

Scaeva ambigua Fallén, 1817: 47

Syrphus monochaetus Loew, 1871: 224

Material studied: Type material; *Scaeva ambigua* female holotype dated "Scaeva ambigua ♀ e Westerg." (in coll. NRS) and *Syrphus monochaetus* male holotype: small red label, white labels "Coll. H. Loew" and "12903", red label "Typus", white labels "Syrphus monochaetus Lw." and "Zool. Mus. Berlin" (in coll. MNB).

Additional material: 156 ♂, 79 ♀ from Norway, Sweden, Finland, Ireland, Germany, Belgium, Switzerland, Spain, Italy, Austria, Hungary, Romania, Serbia, Greece and Turkey.

Diagnosis: A medium sized species of the group, slightly larger than e.g. *P. lundbecki* and *P. transfugus*. Male eye angle about 110-120°, 3rd antennal segment slightly longer (1.5 x) than deep, the halteres darkened, greyish brown. The black bristles postero-laterally on fore femur are strong, almost not narrowing towards their apices. Apical half of fore and mid tibia postero-laterally each with two long bristles-like hairs, those on fore tibia do not quite reach apex of tibia. Female frons glittering black with two small lateral, greyish white dust spots. Abdomen shining steel blue, often with purplish reflections, and with more or less distinct grey markings which, in some specimens, may be visible only from certain angles.

Body length: male 6.4-8.8 mm, female 6.7-7.8 mm. Wing length: male 5.9-6.8 mm, female 6.1-6.7 mm.

Preferred environment: mainly a lowland species; in Norway up to 220 m, in Spain and Greece up to 600-750 m a.s.l. Deciduous forest; scrub-invaded clearings in woodland and forest, scrub-edged tracks in woodland etc., hedgerows and gardens (Speight et al. 2001). – Adult habitat and habits: flies in the immediate vicinity of scrub; the males hover beside *Crataegus*, *Malus*, *Prunus spinosa* or *Salix* in flower, often actually among the branches; the females visit the flowers of these trees. – Flowers visited: *Crataegus*, *Malus*, *Prunus spinosa*, *Pyrus communis*, male catkins of *Salix* spp. (including *S. repens*), *Viburnum*. – Flight period: end March-end May (Norway: end April-end June). – Distribution: all Europe.

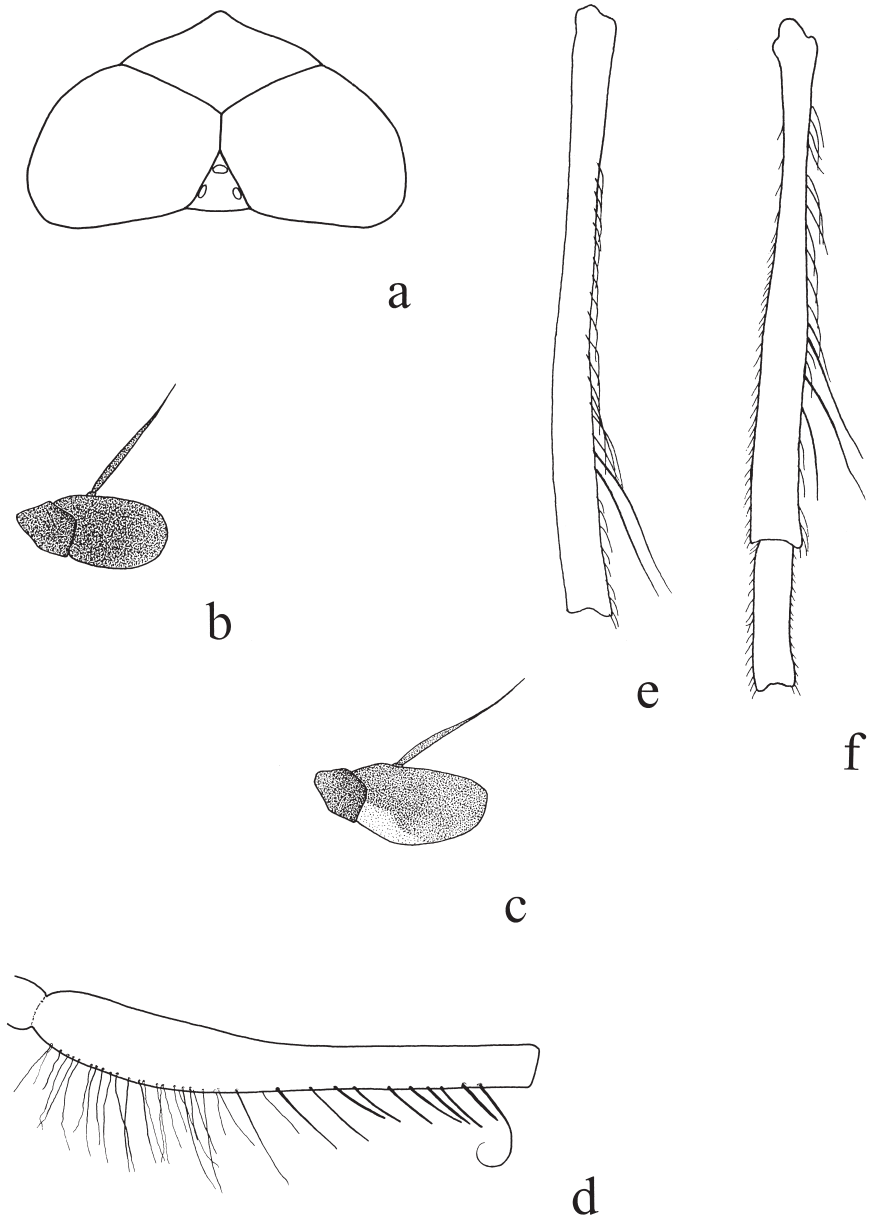


Fig. 3: *Platycheirus ambiguus* (Fallén). – a: male head in dorsal view; – b: male antenna; – c: female antenna; – d: male fore femur; – e: male fore tibia; – f: male mid tibia and basitarsus.

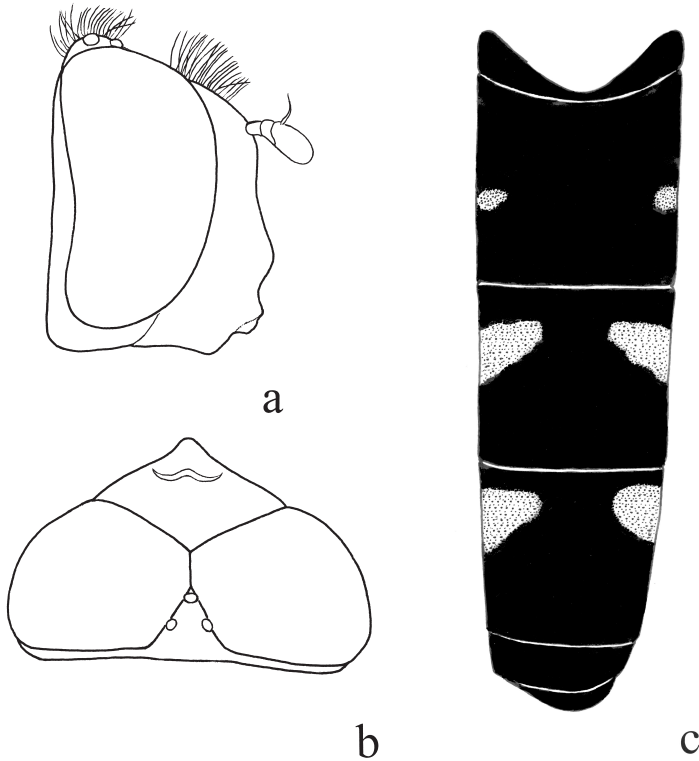


Fig. 4.: *Platycheirus brunnifrons* spec. nov. – a: head in profile, male holotype; – b: head in dorsal view, do; – c: abdomen do.

Platycheirus brunnifrons spec. nov. (figs 4a-c)

Material studied: Holotype, Spain, ♂, labeled "Hayedo Pandetrave. (LEON) 13-IX-1987 Ma A. Marcos-Garcia" (in coll. CEUA). Paratypes: Spain: ♂ "Tornavacas (CC) 30-IX-80 leg. Ma A. Marcos" (in coll. CEUA); ♂ "E-Pyrenäen (Ost) 26 km nw Andorra, Esterri, Cerbi, 1600-2000m, 16.9.93, pyrB leg. Schmid-Egger" (in coll. DDM); ♂ "Puerto de Pajares 1350-1700 m 13-VII-1972"; "Espana, Oviedo or Leon, V.S.v.d. Goot, J.A.W. Lucas" (in coll. MZL). – Finland: ♂ "Uskela, ♂, E.J.Bonsd." (both in coll. FMNH) and ♂ "Fennia, Helsinki 10-8-1957, leg. O. Ranin" (in coll. ZMA). – France: ♂ "Valée de la Durance (Htes Alpes) Francia 15-X-86 leg: G. Remboudière" (in coll. CEUA). – Austria: ♂ "Austria - Hohe Tauern, Virgental: Bichl 1600 m 15.7.91, leg. Claussen" (in coll. CCF). – Switzerland: ♂ "Suisse-Valais Plattjen Saas-Fee 6-VIII-1966 P. Goeldlin" (in coll. MZL). – Macedonia: 2♂ "Pelister 05.06.1990, leg. Krpač"

(in coll. DBNS). – Russia: 4♂ "Yakutia, 232 km east of Hundyga town to Magadan city 30.6.- 4.8.1985, leg. A. Barkalov" (in coll. ZMN). ♂ "Magadan Reg., the upper reaches of Mayakit River 24.VII.1997 V. Mutin" (in coll. VMK). – USA: ♂ "Alaska, Washington Creek, 40 miles N Fairbanks (Black spruce taiga) 28-7-1976, A. Fjellberg leg." (in coll. TNS).

Diagnosis: a slender, medium-sized species, resembling *P. albimanus* but with brownish pruinosity on frons and brownish abdominal spots.

Description:

♂: Head: Eye angle 105 -120°. Frons black, somewhat dulled by brown or brownish grey pruinosity (best seen in lateral view), the hairs dark brown. Lunula shining black. 1st and 2nd antennal segments black, 3rd segment dark brown, reddish brown below at base. Face shining, bluish or greyish black with silver grey dusting, brown haired. Facial tubercle and mouth-edge shining black, undusted. Genae lightly and occiput heavily dulled by whitish dusting, the hairs white except for a few bristly hairs on dorsal part of occiput. Ocellar triangle black or bluish black, black haired in front, yellowish white haired on hind part. – Thorax: scutum and scutellum shining bluish or greyish black, with light grey or brownish pollinosity. The hairs yellow white, only slightly longer than 3rd antennal segment. Pleurae bluish black or black with light silvery pollinosity, laterally sometimes with yellowish metallic reflections; the hairs yellow white. – Wing: microtrichose except for 1st and 2nd basal cells mainly bare, haltere light yellow brown, calypter whitish yellow. – Legs: fore and mid femur yellow brown, more or less darkened at base and along the underside. Hind femur brownish black, except for apex narrowly yellow. Apical half of fore femur postero-laterally with a row of 6-10 black setae. Fore and mid tibia dark grey on about apical half, hind tibia dark except for about basal third. Fore tibia postero-laterally on apical half with a row of about six soft, tilted bristles, the longest may reach beyond apex of tibia. The same part of mid tibia with 2-3 tilted, soft and rather long bristles, the longest reaching the apex of the tibia. Tarsi greyish black, hind basitarsus mainly slender, only slightly thicker than tibia at apex. – Abdomen: tergites with black or brownish-black ground colour, slightly shining. Tergites 2-4 with light brown spots with a light silvery-white pruinosity. The hair colour on disc mainly follows the ground colour of the tergites. Sternites somewhat transparent brownish grey, often with blue reflections. The hairs are yellow white.

Body length: 7.1-9.4 mm. Wing length 6.2-7.7 mm.

♀: unknown

Discussion: *Platycheirus brunnifrons* spec. nov. has great similarity to the East Palearctic *P. fimbriatus* (Loew, 1871) and the Nearctic *P. coerulescens* (Williston, 1887). It differs from *P. fimbriatus* in a wider frons and face, dark brown hairs on upper part of face (yellowish in *P. fimbriatus*) and shorter marginal hairs on scutellum. *P. brunnifrons* can be separated from *P. coerulescens* by means of the light brown pollinosity on the frons (best seen in lateral view), this pruinosity being greyish white in *P. coerulescens*.

The abdominal spots are light brown and small in *P. brunifrons*, those on tergites 3-4 occupying not more than 1/3 - 1/2 the length of the tergite. In *P. coerulescens* the spots are pale orange or bluish with metallic reflections and covering 1/2 - 3/4 of the tergite length.

Preferred environment: in *Fagus sylvaticus* mountain forests, at 1560 m in northern Spain, and in *Quercus pyrenaica* forests, at 1150 m in central Spain (Marcos-Garcia pers. comm.). In Alaska *P. brunifrons* was found in black spruce taiga. – Flight period: end June-mid October. – Distribution: Finland, Austria, France, Switzerland, Spain, Macedonia, Northeastern Russia (Magadan and Yakutia) and USA (Alaska).

Platycheirus caesius Nielsen & Stuke **spec. nov.** (figs 5a-c)

Material: Holotype, Spain, ♂, labeled "Spanien/Asturias Picos de Europa Parque de Covadonga, Porru Llagu 08.06.1995, Stuke leg. (14)" (in coll. MNB). Paratypes: 21♂ with same data (in coll. JHS and TNS). – Switzerland: 4♂ "Suisse-Vaud, Les Rochers de Naye Sommet 11-VII-1991 P. Goeldlin" (in coll. MZL and TNS) and ♂ labeled "CH VS 2200-2600m Visperterminen Rothorn-Schafalp 15.VII.95 / Merz" (in coll. MHNG).

Etymology: *caesius* (Latin) means grey, light grey or bluish grey, referring to the colour of the abdominal maculae.

Diagnosis: a small to medium sized species with metallic bluish, well-defined rectangular abdominal spots. The eyes are touching for a distance which is as long as, or longer, than the distance between the hind ocelli. Front tibia postero-laterally with only a few, short black setae, the longest of which are scarcely longer than thickness of a tibia. The male of *P. caesius* spec. nov. has great resemblance to the male of *P. altomontis* spec. nov., but differs in a more protruding face, in a longer distance of eye contiguity, in black, blunt-ending bristles postero-laterally on apical half of fore femur, and in only a few short setae postero-laterally on fore tibia.

Description:

♂: Head: Eye angle 110-115°. Eyes meeting for a distance about equal to the distance between the ocelli of the vertical triangle. Frons, face (except tubercle and mouth-edge), cheeks and occiput shining black, slightly dulled by greyish white dusting. Anterior part of vertical triangle and frons with brownish black hairs; face, cheeks and occiput white haired. 1st and 2nd antennal segment black, 3rd segment brown, reddish brown ventrally towards base. Arista brown. 3rd segment slightly (about 1.2x) longer than broad. – Thorax: scutum, scutellum and pleurae shining steel blue, white haired. Scutum laterally with weak whitish pollinosity. – Wing microtrichose, only 2nd basal cell partly bare (variable area) on basal half. Calypter white, the rim yellow. Haltere light yellow brown. – Legs: all femora black except for apex narrowly yellow. Tibiae broadly yellow at base. Fore femur postero-laterally with a row of about eight black, rather soft bristles, followed by several long white hairs. Fore tibia postero-laterally with only 1-2 short, black bristles.

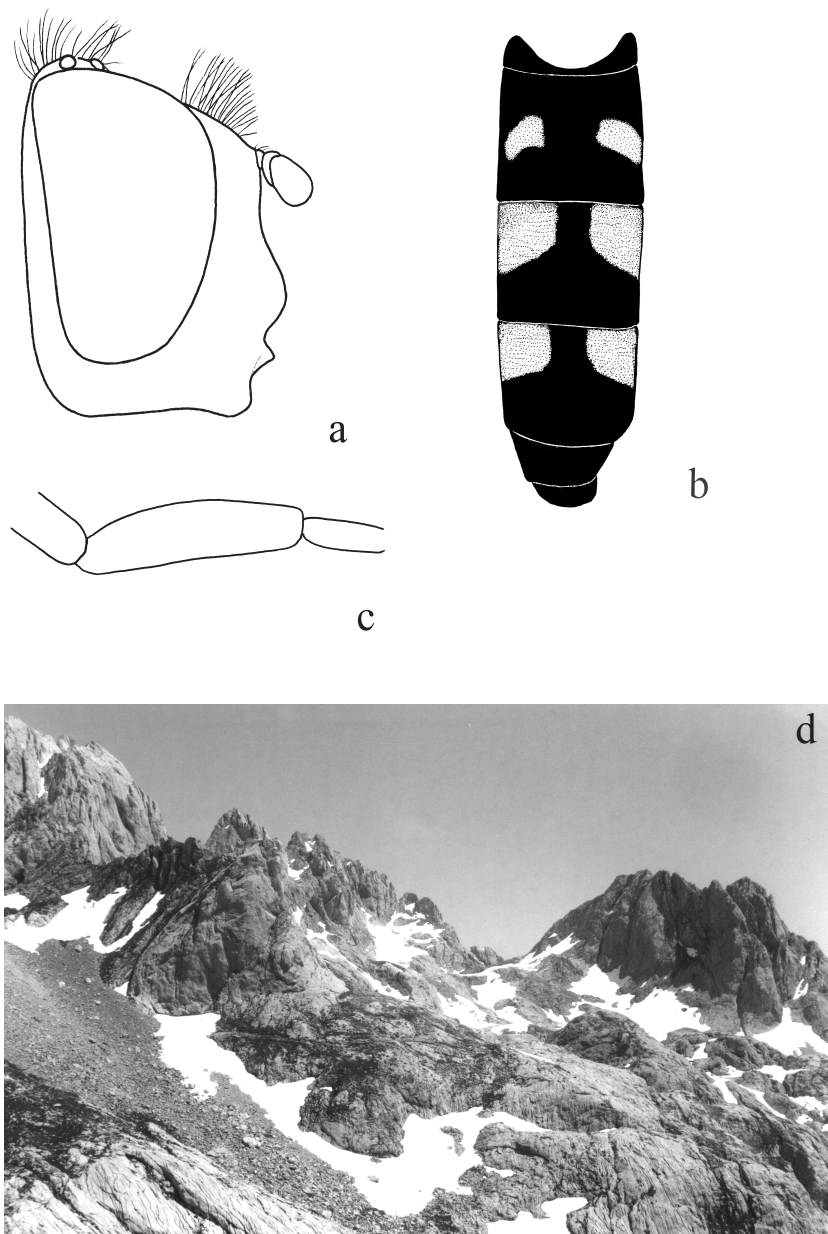


Fig. 5. *Platycheirus caesius* spec. nov. – a: head in profile, male holotype; – b: abdomen, male holotype; – c: hind basitarsus, male holotype; – d: Terra typica. Picos des Europa, northern Spain. – Photo: J.-H. Stuke.

Mid tibia postero-laterally with two bristles. None of the bristles reach the apex of the tibia. Hind basitarsus only slightly swollen. – Abdomen: Tergite 1, basal corners of tergite 2 and the spots on tergites 2-4 steel blue. The spots are dulled by greyish white dusting. Tergites 2-4 are otherwise black, slightly shining. Tergites 5-6 glittering black. Sternites black with light greyish dusting. The hairs are black along the midline of the tergites, otherwise yellow white. Sternites with yellowish-white hairs.

Body length: 5.8-7.6 mm. Wing length: 4.6-5.8 mm.

♀: unknown.

Preferred environment: Jens-Hermann Stuke collected many *P. caesius* males in the alpine zone of Picos de Europa, northern Spain and Bernhard Merz caught one male between 2200 and 2500 m in the Swiss Alps. – Flight period: early June-mid July. – Distribution: high mountains of Switzerland and northern Spain.

Platycheirus claussenii **spec. nov.** (figs 6a-f)

Material studied: Holotype, Austria, ♂, labeled "Österreich/West-Tirol Bezirk Paznaun, S Galtür oberes Jamtal 1800-2100 m, 15.7.1986 leg. Claussen" (in coll. MNB). Paratypes: ♀ with same data as holotype. Switzerland: 3♂ "Suisse-Valais Saas Gruud 9.7.49, J. Aubert", ♂ "Suisse-Valais Col de Bretolet 14.8.62 12-13h. J. Aubert" and ♂ "Suisse-Valais Gletscheralp Saas-Fee 9.VIII.1986 P. Goeldlin" (in coll. MZL and TNS). – Italy: 2♂, 1♀ labeled "dint. Sant. Oropa (VC) M. Mucrone a 2000 18.VII.1989 Dacordi, su *Silene rupestris*" (in coll. MDV).

Etymology: The species is dedicated to Claus Claussen, Flensburg, who collected male and female of this new species and other important material of the *ambiguus* group from the Central European Alps, but also for his many contributions to the knowledge of European hoverfly taxonomy.

Diagnosis: Size about that of *P. ambiguus*. Male: Eye angle 105-120°. Haltere with knob yellow. Posterior side of fore femur with soft, hair like bristles. Fore tibia postero-laterally with a few longer hairs, none of which reach apex of tibia. Abdominal spots orange or steel blue, covered by white pollinosity. The *P. claussenii* male differs from male *P. ambiguus* in its yellow haltere and in the hair-like bristles on the posterior side of the fore femur. The female (n = 2) differs in broader dust spots on frons, the dorsal part of occiput broader and more heavily pollinose, and tergites 2-4 each with a pair of yellowish brown spots.

Description:

♂: Head: Eye angle 105-120°. Lunula shining black. Frons and face metallic bluish grey, dulled by whitish pollinosity, somewhat shining. Facial tubercle and mouth-edge narrowly black. Jowls and occiput greyish white, dull. Vertical triangle dark grey, slightly

shining. The hairs on vertical triangle and frons brownish black, the hairs on face white. Antenna with 1st segment black, 2nd and 3rd segment dark brown, the latter sometimes reddish ventrally at base. – Thorax: shining metallic bluish-grey, sometimes with brassy reflections, lightly pollinose. Humerus and pleurae somewhat dulled by greyish white pollinosity. Entire thorax with long yellowish hairs, the hairs on anterior part of scutum nearly as long as 1.5-2 times the length of 3rd antennal segment. – Wing: stigma and veins on about basal third of wing yellowish brown, the veins on distal part of wing darker, brown to greyish brown. Wing membrane microtrichose, except for about basal half of 2nd costal cell, 1st and 2nd basal cell, and base of anal cell bare. Calypter and haltere light yellow brown. – Legs: fore femur orange yellow, often with a dark brown shadow posteriorly at base. Fore femur postero-laterally with a row of 8-10 soft hair-like bristles, followed by soft black and white hairs. Mid femur orange yellow, darkened on basal 1/3-1/2, and more or less on the underside. Hind femur black except for the tip orange yellow. Mid femur with a row of four anteroventral black setae on basal third, postero-laterally with a few black and many long, soft white hairs. Hind femur ventrally with long whitish yellow hairs, the longest hairs as long as twice the thickness of femur. Fore and mid tibia orange yellow on basal half, greyish brown on distal half. Hind tibia blackish except for orange yellow basal ¼. Fore tibia postero-laterally with a row of tilted hair-like bristles, none of these bristles reaching the apex of the tibia. Mid and hind tibia medially with 2-3 short, soft bristles. Tarsi of fore and mid legs darkened, the last segment of fore legs orange yellow. Hind tarsi black. Hind basitarsus thickened, about 1.5 times thicker than hind tibia at apex. – Abdomen: tergites black with some bluish and brassy reflections, slightly dulled. Tergites 1 and 5 with stronger metallic lustre. Tergites 2-4 with reddish brown spots which are situated some distance from the anterior margin of the tergite. Sternites black with light greyish white pollinosity. All abdominal hairs yellowish white.

♀ (differences from the male): Head: frons shining black with densely greyish-yellow dust spots, at the broadest occupying more than 2/3 the width of frons. The hairs yellow white, in front of ocellar triangle also with some brown hairs. – Thorax: the yellowish hairs on scutum and scutellum shorter than in the male, the longest hairs nearly as long as 3rd antennal segment. Legs: fore and mid femora nearly all orange, the dark areas less distinct than in the male. Hind femur broadly yellow at base. – Abdomen: the hairs along the side margins of the tergites shorter than in the male.

Body length: male 8.2-9.6 mm, female (n=2) 7.9-8.3 mm. Wing length: male 7.1-7.8 mm, female (n=2) 6.5-6.9 mm.

Preferred environment: 1800-2100 m. Along a small stream with tall vegetation (ca. 0.6-1.4 m) rich in blooming *Adenostyles alliaria*, in a humid meadow (Claussen pers. comm.). – Flowers visited: *Silene rupestris*. – Flight period: 9th July to 14th August. – Distribution: the Alps of Austria, Switzerland and Italy.

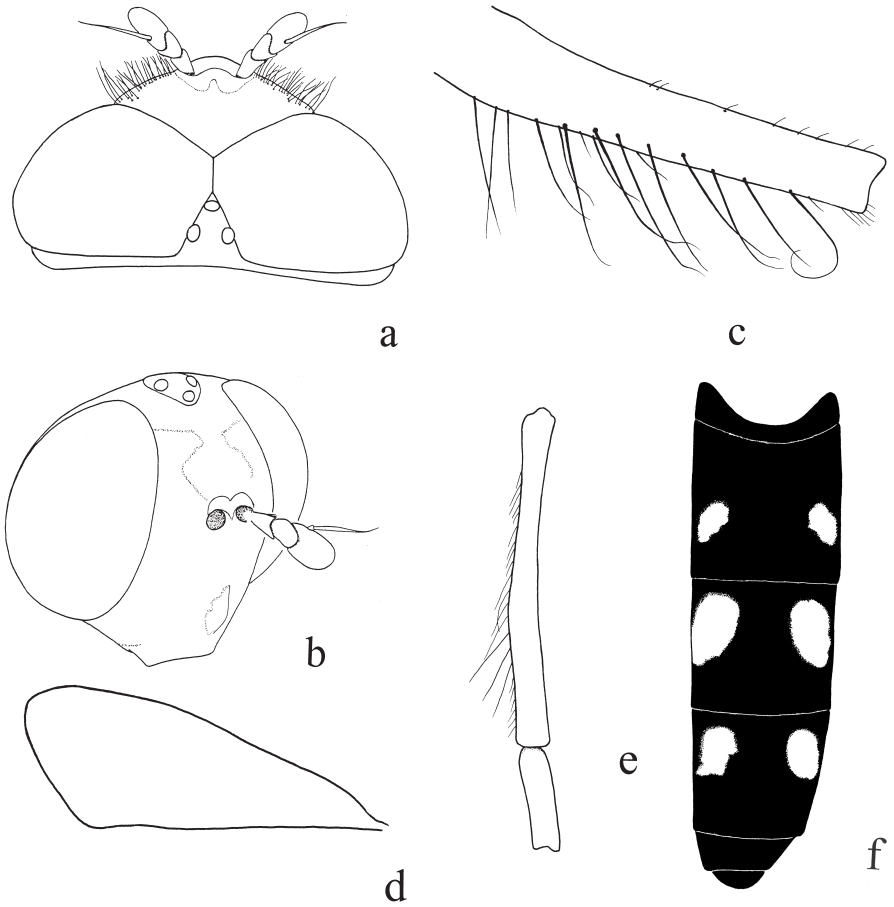


Fig. 6: *Platycheirus claussemi* spec. nov. – a: head in dorsal view, male holotype; – b: head, female paratype; – c: right fore femur, male holotype; – d: alula; – e: right fore tibia; – f: abdomen, male holotype.

Platycheirus goeldlini spec. nov. (figs 7a-e)

Type material: Holotype, Switzerland, ♂, dated "Suisse-Valais Col de Bretolet 6. VII. 1977, J. Aubert" (in coll. MZL). Paratypes: Finland: ♂, dated "Messuby", "R. Frey", "270" (year 1909) and ♂ "H:fors", "Ingelius" (both in coll. FMNH). – Switzerland: ♂ "Suisse-Bretolet 27 VII 62", 2♂ same locality "21 VII 63", ♂ "23 VII 63, 12-13 h", ♂ "24 VII 63, 11-12 h", ♂ "25 VII 63, 14-15 h", ♂ same date "14-15 h", ♂ "27 VI 63, 0800-0900" and ♂ "3. VIII 63 10.00-11.00" and ♂ with same data as holotype; all leg. J. Aubert; ♂ "Suisse - Gr Val Trupshun 21.VII.1980, P. Goeldlin" (in coll. MZL, one male in coll. TNS). ♂ "Davos 1550 m 20-7-1968", "Schweiz Engadin, J.W.Lucas" (in coll. ZMA). – Italy: ♂, "Italia - Dolomiten, M. Scilar, Valle del Ciamin, 2000 m, leg. Claussen 18.-20.7.1988" (in coll. TNS).

Etymology: the species is dedicated to Pierre Goeldlin de Tiefenau, Clarens, Switzerland for supplying me with a rich and important material of the *Platycheirus ambiguus* group from the Swiss Alps, and also for his great contributions to the knowledge of European hoverflies.

Diagnosis: a medium-sized species very much like *P. claussenii* spec. nov., but differing in stronger (not hair-like), more bluntly ending bristles postero-laterally on fore femur, and in longer bristles postero-laterally on apical half of fore and mid tibia.

Description:

♂: Head: Eye angle 105-115°. Frons, face and genae black or bluish black with moderate greyish-white pollinosity, facial tubercle and mouth-edge less dusted. Frons and face along the eye margins black haired, face otherwise and genae whitish haired. Occiput heavily greyish-white pollinose, the hairs yellowish-white. Vertical triangle white haired posteriorly and with a few black hairs anteriorly. – Thorax: scutum, scutellum and pleurae shining bluish black, lightly pollinose. The hairs yellow to yellowish-white. – Wing hyaline, sometimes with a yellow tinge. Haltere yellow, calypter yellowish-white. – Legs: fore femur orange-yellow, more or less darkened ventrally, postero-laterally with a row of about ten strong black, blunt ending bristles, followed by long and soft, white hairs. Mid femur yellow orange, darkened towards base; postero-laterally with long black and white hairs. Hind femur black, narrowly yellow at tip and sometimes at base. Fore and mid tibia yellow on about basal half, on apical half postero-laterally with a row of tilted, long black bristly hairs, the longest reaching beyond tip of tibia. Hind tibia broadly yellow at base, postero-laterally towards apex with a few tilted, white hairs. Tarsi greyish brown, hind basitarsus obviously thickened, 1.5-1.8 times as thick as apex of tibia, yellow haired. – Abdomen: tergite 1 shining bluish black. Tergites 2-4 black, each with an orange or bluish pair of spots, the spots lightly white pollinose. Tergite 1, base of tergite 2 and tergite 5 with some metallic lustre. Tergites 5-6 shining black. The long hairs along the side margins are yellow, the short hairs on the dorsum of the abdomen mainly follow the ground colour. Sternites black with light, whitish pollinosity.

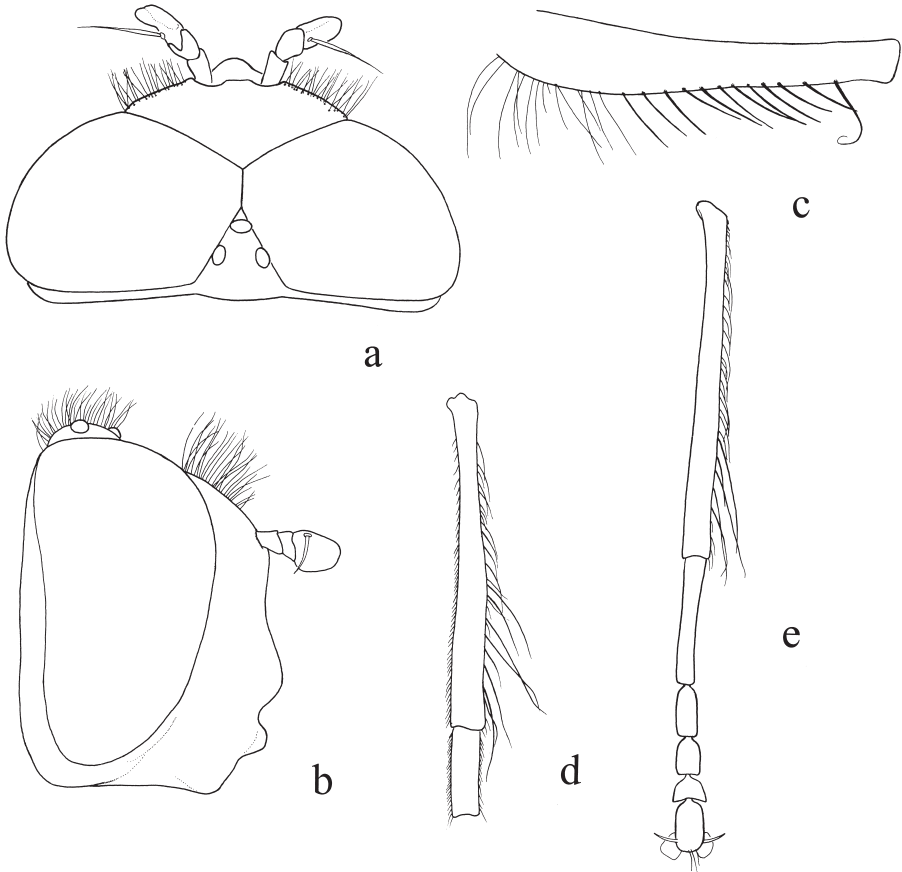


Fig. 7: *Platycheirus goeldlini* spec. nov. – a: head in dorsal view, male holotype; – b: head in lateral view, do; – c: right fore femur, do; – d: left fore tibia, do; – e: left mid leg, do.

Body length: 7.5-9.6 mm. Wing length: 6.5-7.9 mm.

♀: unknown.

Preferred environment: In Messuby, at the shore of the lakes Pyhäjärvi and Iidusjärvi in southern Finland, *P. goeldlini* was collected on flowering *Salix*. – Flowers visited: *Salix*. – Flight period: 6 July - 3 August. – Distribution: Finland and the Alps of Switzerland and Italy.

Platycheirus immaculatus Ôhara, 1980 (figs 8a-g)*Platycheirus immaculatus* Ôhara, 1980: 138

Material studied: Type material: paratypes Japan, ♂, dated "Kikuchi, Kumamoto Pref., 27.IV.1979, H. Makihara leg.", "*Platycheirus immaculatus*, ♂ Ôhara, 1980" and ♀ "Kanayama, Yamanishi Prof., 16.VI.1975 (MT3), J. Emoto leg." (in coll. TNS). – Additional material: Germany: D-7624 Bad Rippoldsau 12.5.1987 1♂, leg. R. Treiber; Baden-Württemberg 970m at Vogelskopf Skilift 4.5.1993, 1♂, leg. D. Doczkal (in coll. HBJ); Baden-Württemberg, Freiburg, Schönberg 26.4.1992 1♂, 1♀ and same locality 25.4.1993 2♂, 4♀, all leg. J.-H. Stuke; Baden-Württemberg, Schwarzwald, Zastler Tal 24.5.1992, 1♀, leg. J.-H. Stuke (in coll. JHS). – France: Ballon d'Alsace, Vosges, NE France, Lambert grid 531.050, ca. 3000 ft., 21.6.1979, 2♀ on *Sorbus aucuparia* flower, in glade of *Picea abies* woods, leg. M.C.D. Speight, (in coll. MSD and CCF). – Switzerland: Vaud, Les Pléiades 5.6.1967, 1♂; Vaud, Vallorbe, Source de l'Orbe 25.6.1987; Vallorbe 26.5.1988, 1♂; Vaud, Jorat, Talent 843 m 22.6.1987, 1♀, all leg. P. Goeldlin; Vaud, Le Brassus, Praz Rodet I 29.6.1987, 1♀, leg. A. Maibach; Valais 12.5.1967, Chemin, 1♂, leg. P. Goeldlin; Valais, Col de Bretolet 8.7.1972, 1♀, leg. J. Aubert (all in coll. MZL); Fayause 970 m, 25.5.1981, 1♀ leg. J.A.W. Lucas (in coll. ZMA). – Italy: Bolzano, Sarntal 1250 m, 1976, 1♀, leg. C.J. Zwakhals; Foute d Maresciallo casentinesi forest nr. Forli, E. Miliaromagna, Fagus-Abies forest, 400 m alt. 1.7.1988, 1♀, leg. M.C.D. Speight (in coll. MSD). – Croatia: Zagreb, Sljeme (1000 m), 24., 27., 29. and 30.V.1969, 4♀, leg. H.J.P. Lambeck (in coll. ZMA). – Montenegro: Durmitor YU Sušicko-jez.-Uzvodno 6.5.2000 1♂, leg. A. Vujic. – Macedonia: Mavrovo 30.5.1960 1♂, 2♀ on *Euphorbia* sp., leg. Glumac (in coll. DBNS). – Greece: Peloponneso, Mt. Taigeto, Anogia, prof. Ilias, 800 m, 9.4.1989, 8♂, leg. Daccordi (in coll. MDV); Euboea, Seta, 800 m 25.4.1987, 2♂, leg. J.A.W. Lucas; 10 kms S of Gravia, near Delphi, end of April 1990, 1♂, leg. J.A.W. Lucas; Arkadhia, Vlacherna 28.4.1979, 1♂, coll. A.E. Stubbs (in coll. BMNH). – Turkey: ♂♀ examined (in coll. SSK). – Caucasus: Teberdinsk. Salov. Korort, North Caucasus 30.5.1964, Gorodkov, 1♂ (in coll. ZISP). – Russia: Mutin & Barkalov (1999) published it from Russian Far East.

Diagnosis: small, slender and black species, may easily be confused with a dark *Melanostoma*. Male: head strikingly round. Eye angle 100-110°, abdomen dull black except genitalia shiny black; hind legs black except for yellow knees, fore and mid legs yellow, but with a brownish black shadow in the middle of the tibia. Female: thorax and abdomen shining black or with traces of orange yellow spots on tergites 2-4; fore and mid legs mainly yellow, hind legs predominantly black, but base of femur and knees yellow.

Body length: male 5.8-8.2 mm, female 6.2-7.3 mm. Wing length: male 4.5-6.0 mm, female 5.7-6.4 mm.

Preferred environment: in forests, *Picea abies* wood glades, at altitudes between 150 and 1300 m. Also observed "in the herb layer of dark woods, where it is flying slowly

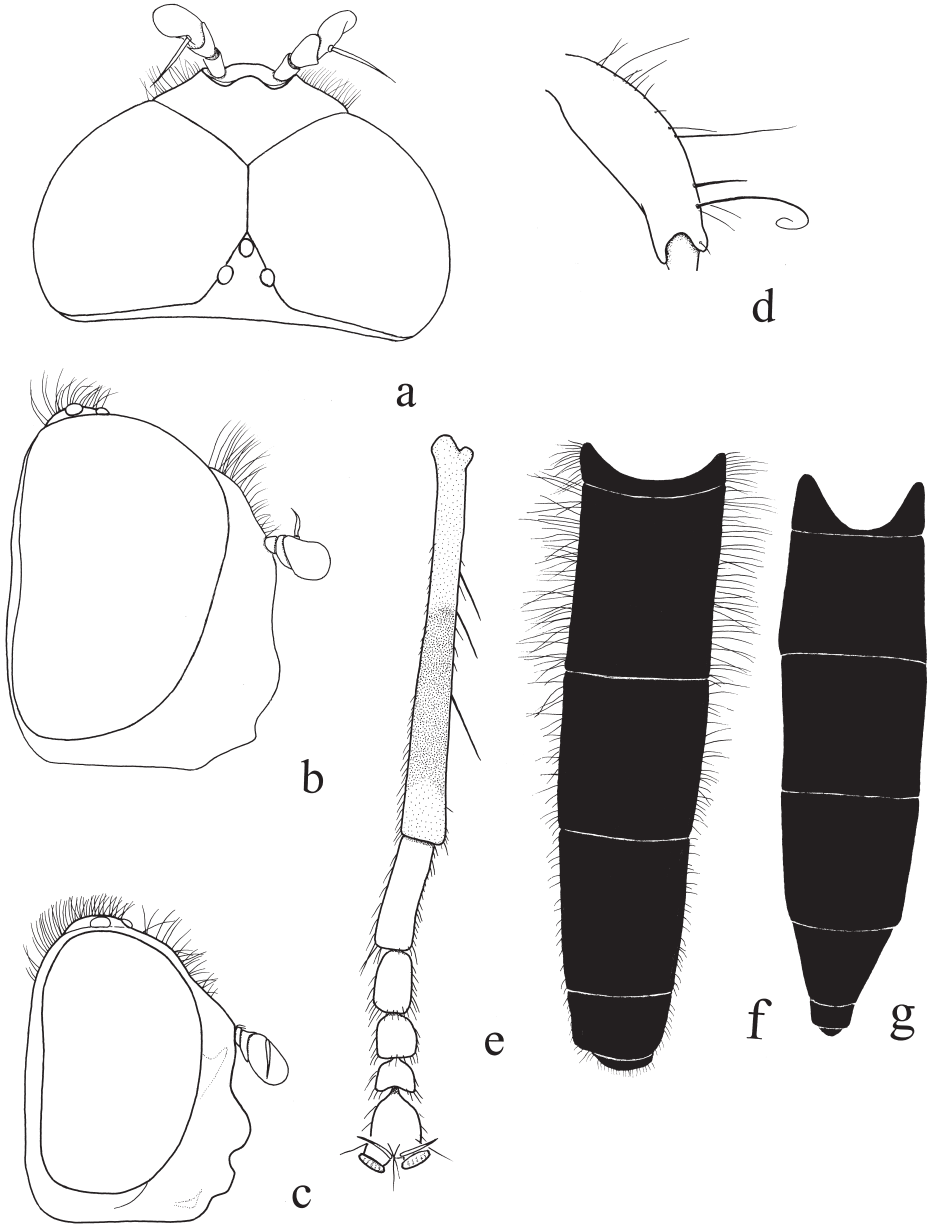


Fig. 8: *Platycheirus immaculatus* Ôhara. – a: head in dorsal view, male paratype; – b: head in lateral view, do; – c: head in lateral view, female paratype; – d: left fore femur, seen from in front (male paratype); – e: left fore leg (male paratype); – f: abdomen, male paratype; – g: do, female paratype.

among the herbs. The small, inconspicuous flies are difficult to detect" (Dieter Doczkal pers. comm.). – Flowers visited: *Sorbus aucuparia*, *Euphorbia* sp. – Flight period: April-June. – Distribution: originally described from Japan, but later found in central and southern Europe and in eastern Russia.

Platycheirus lundbecki (Collin, 1931) (figs 9a-g)

Melanostoma lundbecki Collin, 1931: 68

Platycheirus fjellbergi Nielsen, 1974: 167

Material studied: Norway: 26♂, 30♀. – Sweden: 14♂, 9♀ (1♂ "Jokkmokk 9.VII.1979 P. Goeldlin") and Abisko (Nielsen, 1974). – Canada: 3♂ (in coll. TNS and MZL).

Diagnosis: a rather small species with well-defined, bluish spots on the abdomen. Eye angle 110°. The male closely resembles *P. caesius* spec. nov., but differs as follows: scutum and scutellum black, slightly dulled by greyish yellow pruinosity (scutum, at least hind part, and scutellum shining steel blue in *P. caesius*). 2nd basal cell of wing all microtrichose (basal part of 2nd basal cell is bare in *P. caesius*). Haltere yellowish, the knob darkened greyish brown, calypter yellow white. Apical half of fore tibia with a few rather long, black bristles, the last of which reaches the apex of the tibia (the bristles shorter, not reaching the apex of tibia in *P. caesius*). Tergite 1 and tergite 2 at base dull black (shining steel blue in *P. caesius*).

Body length: male 5.7-7.2 mm, female 5.1-7.6 mm. Wing length: male 5.0-5.8 mm, female 4.8-6.3 mm.

Preferred environment: forest/open ground; beside lakes in taiga and in arctic-alpine tundra. – Flowers visited: *Salix* spec. (male catkins). – Flight period: mid June-beginning August. – Distribution: northern Europe: Norway, Sweden, northwestern Siberia, Greenland, in North America from Alaska and northern Canada.

Platycheirus meridimontanus **spec. nov.** (figs 10a-d)

Type material: Holotype, Macedonia, ♂, dated "Otesevo 13.06.1959 leg. Glumac" and holotype label (in coll. DBNS). Paratypes, ♂ with same data as holotype and ♂ "Mavrovo 30.05.1960 leg. Glumac" (in coll. DBNS). – Lebanon: ♂ labeled "Syria: Libanon Bscharre 1300 m 1.15.VI.31 E. Pfeiffer leg." (in coll. ZMA).

Etymology: *meridionalis* means southern and *montanus* mountains.

Diagnosis: resembling *P. abruzzensis*, both species having fore tibia short haired, without lateral bristles or long hairs. *P. meridimontanus* separates from the former in having the frons black haired (at least hind part of frons white haired in *P. abruzzensis*). Vertical triangle, all of thorax and 1st tergite and base of 2nd tergite greyish black (metallic blue in *P. abruzzensis*).

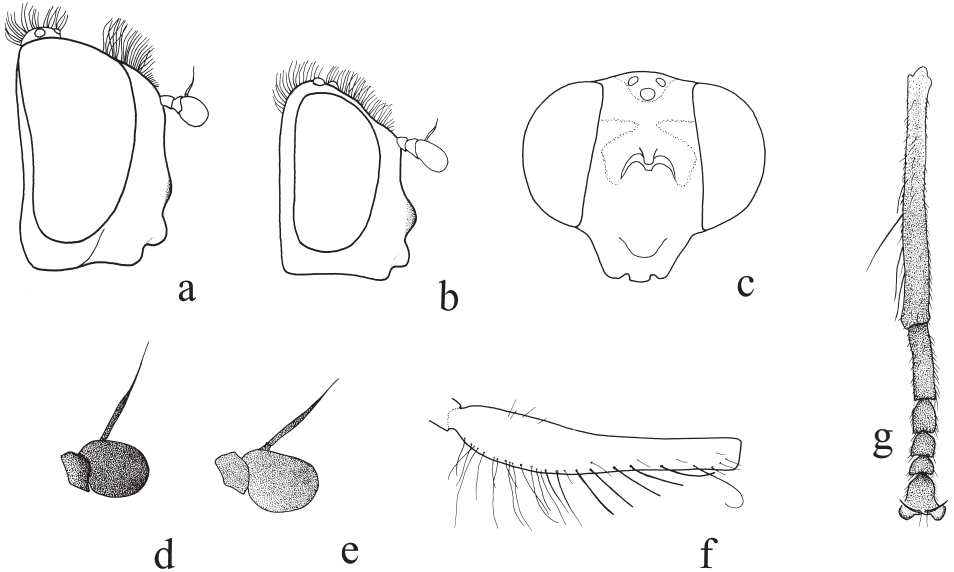


Fig. 9: *Platycheirus lundbecki* (Collin). – a: head in lateral view, male; – b: do, female; – c: head, female, seen from in front; – d: antenna, male; – e: antenna, female; – f: right fore femur, male; – g: right fore leg, male.

The abdomen of *P. meridiomontanus* is broader than in *P. abruzzensis*: tergite 2 is about 1.1x broader than long at base, while it is 1.1x longer than broad in *P. abruzzensis*). The spots on tergites 3-4 are more triangular in *P. meridiomontanus* and reach the front margins broadly; in *P. abruzzensis* the spots are rectangular, pointing obliquely outwards and do not touch the tergite front margins.

Description:

♂: Head: eye angle 100°. Frons and face greyish black with a metallic blue lustre, lightly greyish white pollinosity. Lunula and facial tubercle black, undusted. Frons black haired, face with white hairs. Occiput dulled by light greyish dusting, the hairs white yellow. Vertical triangle black or bluish black, shining, black haired. – Thorax: scutum and scutellum shining black with brassy and bluish lustre, the hairs light yellow. Pleurae light bluish-grey, somewhat dulled by greyish-white pollinosity, the hairs yellowish-white. – Wing: microtrichose, but mainly bare on basal half: basal half of costal cell, about basal 1/5 of marginal, submarginal and discal cells, nearly all 1st and 2nd basal cells, basal 1/3 of anal cell and a mediobasal part of anal lobe. Stigma and veins on basal 1/3 yellowish orange, otherwise light greyish brown. Haltere yellow orange. Calypter white with the rim yellow. – Legs: fore and mid femora orange yellow, often brownish-black at base and ventrally. Hind femur black except for yellow apex.

Fore femur on apical half with a row of 4-5 rather soft black bristles postero-laterally, their apices pointed. Fore and mid tibia yellow on about basal 2/3, apical part greyish brown. Fore tibia postero-laterally short haired, without setae or long hairs. Mid tibia on apical half with 1-2 tilted, soft yellow bristly hairs. Hind tibia yellow on about basal third, otherwise greyish black. All tarsi darkened, greyish brown to greyish black. Hind basitarsus slender, only slightly thicker than tip of tibia. – Abdomen: tergites black, somewhat shining. Tergite 1, basal part of tergite 2 and tergite 5 with greyish-yellow reflections. Tergites 2-4 with triangular greyish or orange yellow, lightly pollinose spots, the spots on tergites 3-4 reach the anterior margins of the tergites broadly. The hairs yellow along the lateral margins of the tergites, otherwise they follow the tergite ground colours. Sternites black with thin whitish pollinosity, the hairs white.

Body length: 9.0-9.6 mm. Wing length: 7.4-7.7 mm.

♀: unknown.

Flight period: end May-mid June. – Distribution: mountainous areas of Macedonia and the Lebanon.

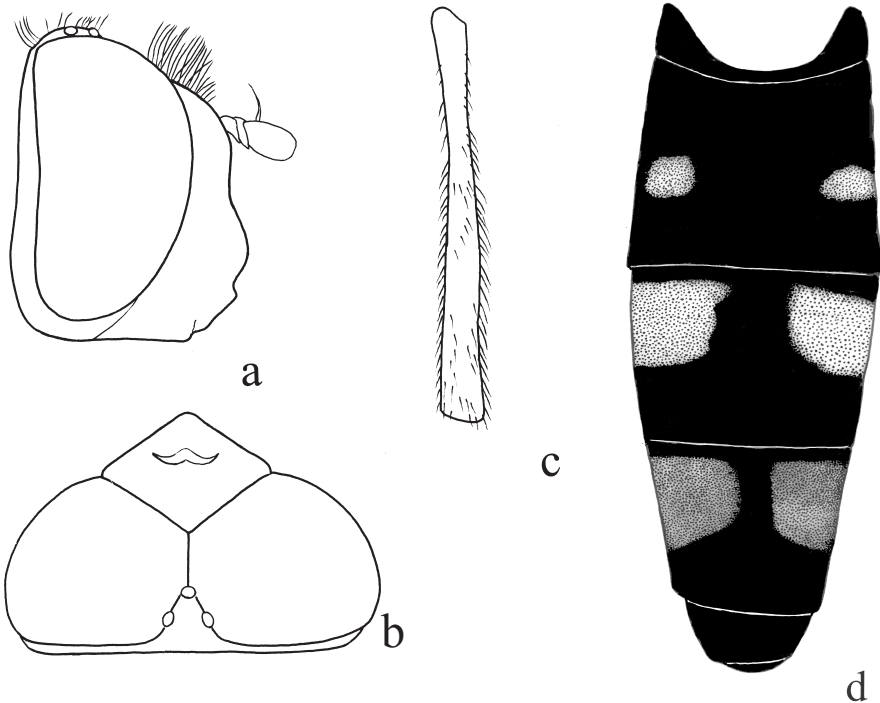


Fig. 10: *Platycheirus meridimontanus* spec. nov. – a: head in lateral view, male holotype; – b: head in dorsal view, do; – c: left fore tibia, do; – d: abdomen, do.

Platycheirus subambiguus spec. nov. (figs 11a-b)

Type material: Holotype, Croatia, ♂, labeled "Finme 1853" (= Fiume = Rijeka) and "*albimanus* Alte Sammlung" (in coll. NMW). Paratypes; ♂ with same data as holotype (in coll. NMW). – Italy: ♂ "Riva. 10/5-41577.", "Sammlung Dr. Th. Becker" and "*ambiguus*" (in coll. MNB). – Hungary: ♂ dated "Hungaria/Vertes Geb., Csokakö, Kalksteinbruch *Salvia pratensis* 23.5.1995 leg. F. Burger" (in coll. DDM).

Etymology: *sub* means under or close to, saying that the species is very similar to *ambiguus*.

Diagnosis: very similar to *ambiguus*, but differs from the latter in the following ways. Head: 3rd antennal segment longer (2.2 x as long as wide), upper part of face white haired (dark brown in *ambiguus*). Thorax: scutum steel blue, shining (bluish black and less shining in *ambiguus*) and the hairs on scutum and scutellum shorter. Halteres yellow (normally greyish brown in *ambiguus*). The bristles postero-laterally on apical half of fore tibia are shorter in *subambiguus*. In *P. subambiguus* the longest white hairs postero-laterally, towards the base of fore femur, are shorter, only as long as the thickness of the femur (in *ambiguus* these hairs are distinctly longer than the maximum thickness of the femur). Abdomen: tergite 1 and basal part of tergite 2 shining steel blue (dull black in *ambiguus*).

Description:

♂: Head: eye angle 110°. Frons, face, cheeks and occiput with greyish white dusting. Frons and anterior half of vertical triangle with brownish-black hairs; face, cheeks and occiput with yellowish-white hairs. 1st antennal segment black, 2nd and 3rd segments with arista brown. 3rd antennal segment particularly long, twice as long as broad. – Thorax: scutum, scutellum and pleurae steel blue, shining and only vaguely dulled by light greyish dusting. The hairs on thorax all yellowish white. – Wing: 2nd basal cell bare, without microtrichiae. Haltere yellow, calypter yellowish white. – Legs: fore and mid femur brownish black on about basal 3/4, hind femur on about 9/10, pale haired. Fore and mid tibia broadly yellow at base, narrowly so at apex, hind tibia yellow on about basal 1/4. Segment 5 of fore and mid tarsus yellow, tarsi otherwise brownish black. – Abdomen: tergite 1 and basal part of tergite 2 steel blue shining. Tergites 2-4 dull black, the spots and an anteromedian stripe metallic greyish blue. Tergites 5-6 steel blue. Sternites shining black with very light greyish dusting, the hairs yellow white.

Body length: 8.2-9.1 mm. Wing length 6.2-6.9 mm.

Variability: in one of the paratypes the mid legs have all tarsal segments darkened.

♀: unknown.

Flowers visited: *Salvia pratensis*. – Flight period: May. – Distribution: NE Italy, Croatia and Hungary.

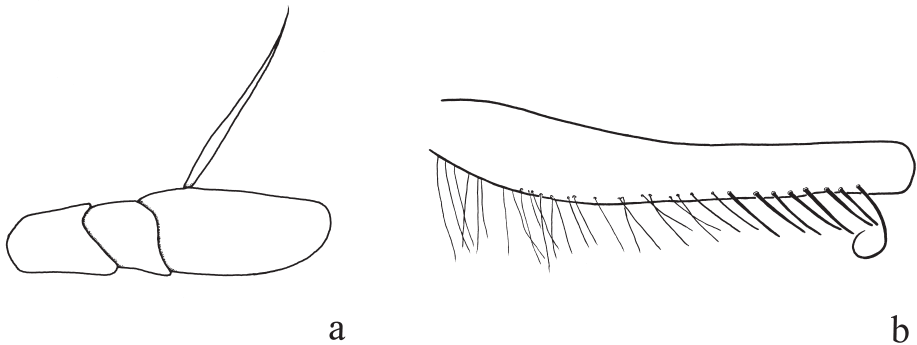


Fig. 11: *Platycheirus subambiguus* spec. nov. – a: antenna, male holotype; – b: right fore femur, do.

Platycheirus transfugus (Zetterstedt, 1838) (figs 12a-j)

Scaeva transfuga Zetterstedt, 1838: 607

Platycheirus celsus Violovitsh, 1975: 74 (syn. Nielsen 1999: 14)

Material studied. Type material: Holotype, Sweden, ♂, dated "*S. transfuga* ♂, Haparanda" and "Lectotype, H. Andersson des.-69" (in coll. ZML) and ♂ holotype *P. celsus* Violovitsh (in coll. ZISP). Additional material: Norway: 27♂, 17♀ (in coll. ZMB and TNS). – Sweden: Abisko 2♀ (in coll. TNS). – Finland: Uskela, Somero, Hoplax 3♂, 2♀ (in coll. FMNH). – Germany: 1♀ "D-7475 Tieringen 9.6.88, R. Treiber leg.", "Lochen" (in coll. DDM); 1♂ "D Baden-Württemberg Herrlingen 3.5.1995 Lautertal 520-610 m leg. Doczkal 7525SW" (in coll. DDM).

Diagnosis: rather small species (slightly smaller than *ambiguus*) with reddish (in the male white pollinose) oblique spots on the abdomen. Male: eye angle 105-110° (120°). Fore tibia normally without or with 1-2 short setae only; fore femur postero-laterally with a row of hair-like bristles.

Description of *P. transfugus* female:

Head: Face moderately produced, greyish-white pollinose except for central prominence and upper mouth edge shining black, white haired. Frons and lunula shining black with triangular greyish-white spots, each spot occupying about 1/3 of width of frons. Antenna with 1st segment black, 2nd and 3rd segments brown, 3rd segment often darkened dorsally. Arista brown. Genae and occiput greyish white pollinose, occiput more densely so. Vertex and vertical triangle shining black. Dorsal part of frons black haired, anterior part with white and black hairs. – Thorax: scutum and scutellum shining black, white haired, except postpronotum densely and notopleuron with light whitish pollinosity. Pleurae with thin white pollinosity, white haired. – Wing microtrichose, but 2nd costa cell, subcostal cell, marginal cell and 2nd basal cell bare on basal 1/5. Calypter

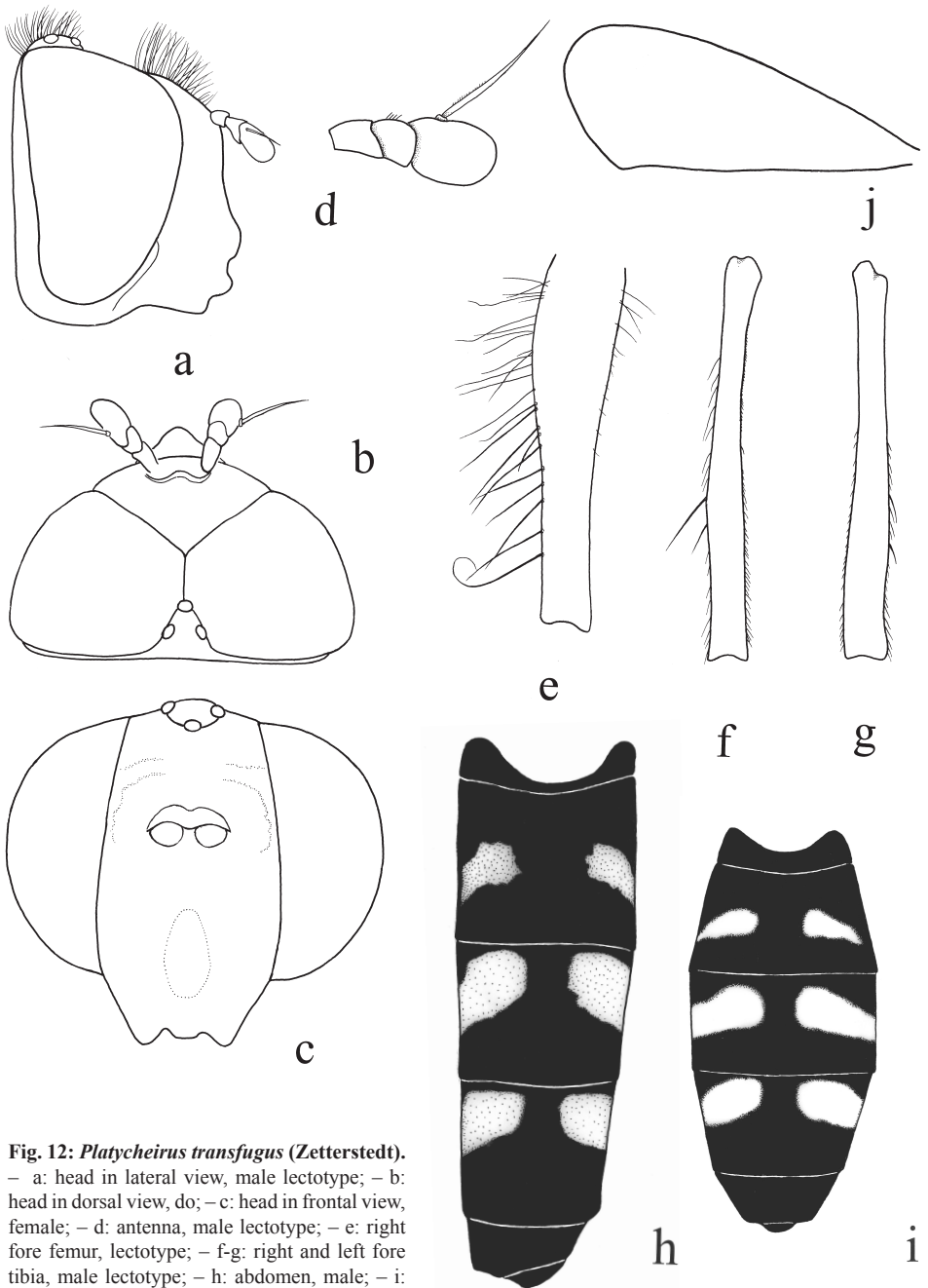


Fig. 12: *Platycheirus transfugus* (Zetterstedt).
 – a: head in lateral view, male lectotype; – b: head in dorsal view, do; – c: head in frontal view, female; – d: antenna, male lectotype; – e: right fore femur, lectotype; – f-g: right and left fore tibia, male lectotype; – h: abdomen, male; – i: abdomen, female; – j: alula, male.

white to whitish yellow, haltere pale yellow. - Legs: fore and mid femur orange yellow, sometimes darkened postero-medially. Hind femur dark greyish-brown to black, except for yellow base and knees. Fore and mid tibia orange yellow on basal half, basal third yellow. Tarsi darkened, greyish brown to black. - Abdomen: tergites shining black, only tergite 1 lightly pollinose. Tergites 2-4 each with a pair of orange red oblique, subrectangular spots which do not reach the side margins. The hairs on tergite 1, at base of tergite 2 and along the side margins of the following tergites white, otherwise the hairs mainly follow the ground colour of the integument. Sternites mainly black, sometimes yellow-brown along the side margins of the last sternites.

Body length: male 5.5-7.9 mm, female 6.2-7.4 mm. Wing length: male 4.6-6.5 mm, female 5.2-6.4 mm.

Preferred environment: Mainly in open deciduous or pine/spruce forests, or in meadows of wooded areas. More rarely in subalpine and alpine areas. - Flowers visited: *Potentilla fragiformis* and *Chrysanthemum fruticosum*. - Flight period: mid June-July (exceptionally early August). In Norway 15 May-21 July, peak late May-early June). - Distribution: a mainly northern species; from northern Fennoscandia (Nielsen 1999: 84), Denmark, Germany, Kazakstan, northern Asia and Mongolia (as *P. celsus* Viol. [Mutin & Barkalov 1999]).

Final remarks

Most of the European *Platycheirus ambiguus* group species seem to have an early flight period. Species which have their main occurrence in the lowland or in low mountain areas, like *P. ambiguus*, *P. immaculatus* and *P. subambiguus* have their flight period in April-May, *P. transfugus* slightly later. Arctic-boreomontane species (*P. lundbecki*) and southern alpine species (*P. abruzzensis*, *P. altomontis*, *P. caesius*, *P. clausseni*, *P. goeldlini* and *P. meridimontanus*) have a similar flight period, at the start of summer in their distribution areas. If the studied material reflects the real flight periods, *P. brunneifrons* is an exception, with the imago active from the end of June till mid October.

The distribution of the species is as follows:

- Strictly northern distribution: *P. lundbecki*: mountain tundra of southern Norway, high boreal areas of Fennoscandia, North Siberia, northern Canada, Alaska and Greenland.
- Mainly northern distribution: *P. transfugus*: Fennoscandia to southern Germany (here very local and scarce), Siberia.
- Southern alpine distribution: *P. abruzzensis*, *P. altomontis*, *P. caesius*, *P. clausseni*, *P. goeldlini*, *P. meridimontanus*.
- Southern distribution: *P. subambiguus*: NE Italy, Croatia, Hungary.
- Wide distribution: *P. ambiguus*: from 70° N in Scandinavia to southern Spain and

Turkey, eastwards through the whole of Siberia. *P. brunneifrons*: southern Finland and in high mountains of France and central Spain, in northeastern Siberia and in Alaska. *P. immaculatus*: Germany and southwards in Europe, Turkey, Caucasus and East Siberia.

Key to European species of the *Platycheirus ambiguus* group

♂: eyes meeting on frons (the long curled bristle at apex of fore femur is omitted in the key)

- | | | |
|---|---|-----------------------|
| 1 | Abdomen all black with bluish reflections, without spots | <i>P. immaculatus</i> |
| – | Tergites 2-4 with spots | 2 |
| 2 | 3 rd antennal segment long, about 2.2x longer than broad (Fig. 11a) | <i>P. subambiguus</i> |
| – | 3 rd antennal segment shorter, distinctly less than 2.2x longer than broad | 3 |
| 3 | Fore femur postero-laterally, near apex with a row of hairs which are tapering towards their apices (Fig. 12e) | 4 |
| – | Fore femur behind near apex with a row of strong bristles of uniform thickness and which narrow rather abruptly towards their apices (Fig. 3d) | 6 |
| 4 | Eyes touching for a short distance only, shorter than the distance between the ocelli of vertical triangle (Fig. 2b). Facial tubercle and mouth-edge somewhat produced. Fore (and mid) femur black except for the knees narrowly yellow. Tergites 2-4 with blue grey spots. Rather short and stout species | <i>P. altomontis</i> |
| – | Eyes touching for a distance which is at least as long as the distance between the ocelli of vertical triangle. Facial tubercle and mouth edge only slightly produced, face rather flat. Fore femur yellow or greyish-yellow, sometimes with a brownish black stripe baso-ventrally. Tergites 2-4 with yellowish-orange spots | 5 |
| 5 | Fore tibia short haired, or postero-laterally with 1-2 bristles which are rarely longer than the thickness of the tibia (Fig. 12f-g). Fore femur postero-laterally with long hairs which are about as long as the maximum thickness of the femur. Tip of alula rounded (Fig. 12j). Rather short species | <i>P. transfugus</i> |
| – | Fore tibia postero-laterally with a few long hairs, the longest of which are longer than the thickness of the tibia (Fig. 6e). Fore femur postero-laterally with long hairs, the longest exceeding the maximum thickness of the femur. Tip of alula less rounded (Fig. 6d) | <i>P. clausseni</i> |
| 6 | Haltere knob greyish brown | 7 |
| – | Haltere knob yellow | 8 |

- 7 Fore femur yellow or greyish-yellow. Apical half of hind tibia with some long hairs postero-laterally, which are two times longer than the tibial diameter. Wing with 2nd costal cell, 1st and 2nd basal cells bare, without microtrichiae. Eye angle about 110-120° *P. ambiguus*
- Fore femur black, except for apex narrowly yellow. Apical half of hind tibia postero-laterally with some longer hairs, the longest of which are only slightly longer than the tibial diameter. Wing with nearly all 2nd costal cell, 1st and 2nd basal cells microtrichose. Eye angle about 105° *P. lundbecki* (pro parte)
- 8 Fore tibia short haired, normally without setae-like hairs postero-laterally. Eye angle 100° 9
- Fore tibia postero-laterally with setae-like hairs. Eye angle larger than 100°...10
- 9 Vertical triangle, all of the thorax, tergite 1 and tergite 2 at base metallic blue. Tergites 2 and 3 slightly longer (about 1.1x) than wide. Frons more or less white haired, at least posteriorly. Tergites 2-4 with orange yellow, white pollinose spots *P. abruzzensis*
- Vertical triangle, all of the thorax, tergite 1 and tergite 2 at base charcoal grey. Tergites 2 and 3 slightly broader (about 1.1x) than long. Frons black haired. Tergites 2-4 with bluish grey or more or less obscurely orange yellow, pollinose spots *P. meridimontanus*
- 10 Fore femur yellowish, at least antero-dorsally. Fore tibia postero-laterally with long hairs, the longest reaching beyond the apex of the tibia 11
- Fore femur black except for knees narrowly yellow. Fore tibia postero-laterally with hairs which do not reach beyond the apex of the tibia 12
- 11 Frons covered by greyish pollinosity. Mid femur postero-laterally with rather long black hairs, the hairs near apex are longer than the thickness of the femur. Hind basitarsus swollen, about 1.5x thicker than the tibia at its apex. Spots on tergites bluish grey to obscure orange *P. goeldlini*
- Frons covered by brownish pollinosity. Mid femur postero-laterally with rather long, black hairs which are not longer than the maximum thickness of the femur. Hind basitarsus less swollen, only slightly thicker (1.2 x) than the tibia at its apex. Spots on tergites rather small, orange brown *P. brunifrons*
- 12 Fore tibia postero-laterally with a few isolated black setae. Tergites 2-4 each with a pair of shiny, bluish or bluish grey, metallic spots, all spots situated at base of tergites *P. caesius*
- Fore tibia postero-laterally with a row of long, adpressed black setae, the longest reaching the apex of the tibia. Tergites 2-4 each with a pair of dull grey spots, the spots on tergite 3 isolated from anterior margin of tergite *P. lundbecki* (p.p)

♀: eyes widely separated on frons

- | | | |
|---|--|-----------------------|
| 1 | Tergites all shining black, or rarely with faint yellowish spots. Fore and mid legs yellow, the femora sometimes darkened on basal half. A small and slender species | <i>P. immaculatus</i> |
| – | Tergites 2-4 with spots | 2 |
| 2 | Tergites 2-4 with orange-yellow spots | 3 |
| – | Tergites 2-4 with grey or greyish brown spots | 5 |
| 3 | Occiput behind vertical triangle heavily greyish-white dusted. Dust spots on frons large, running broadly along the eye margins (Fig. 6b) | <i>P. claussemi</i> |
| – | Occiput behind vertical triangle only lightly dusted. Dust spots on frons narrow and triangular (Fig. 1c, 12c) | 4 |
| 4 | 3 rd antennal segment about 1.5 times as long as wide. Pleurae rather heavily dulled by white dusting, almost as dense as that on occiput. Anteromedian part of hind tibia with a row of white hairs which are about as long as the diameter of the tibia | <i>P. abruzzensis</i> |
| – | 3 rd antennal segment about 1.2 times as long as wide. Pleurae lightly dulled by white dusting, obviously less dense than that on occiput. Anteromedian part of hind tibia with only short hairs, the hairs no longer than half the diameter of the tibia | <i>P. transfugus</i> |
| 5 | 3 rd antennal segment 1.6 times longer than wide. Lower part of face heavily dusted. Fore and middle legs yellow (sometimes a little darkened, but never black). Tergites with rather faint grey spots which may be apparent only from some viewpoints. The spots are confluent basally | <i>P. ambiguus</i> |
| – | 3 rd antennal segment about 1.2 times longer than wide. Lower part of face lightly dusted, contrasting well from that of occiput. Fore and middle legs black, except for the yellow knees. Tergites with rather easily visible grey spots which are well separated and never confluent | <i>P. lundbecki</i> |

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