

Synopsis of the *Platycheirus ambiguus* species group (Diptera, Syrphidae), with description of *Platycheirus arnei* sp. n. and a preliminary key to the species

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23 species of the *Platycheirus ambiguus* group are known up till now and are presented here. A new species, *P. arnei* sp. n. is described, and *P. asioambiguus* Skuffin, 1987 is found to be a junior synonym of *P. longicornis* Peck, 1979, **syn. nov.** Details are given on the east Palaearctic and little known *P. fimbriatus* (Loew, 1871), and a first find of *P. fimbriatus* in Europe is recorded from Hungary. The paper includes a preliminary key to the species.

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

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Introduction

Platycheirus is a large hoverfly genus, mainly Holarctic and boreal in distribution, from the arctic tundra southwards. Seventy species are known from the Nearctic region and more than a hundred from the Palaearctic region. A number of species occur also in Neotropical Mexico, Central America, and South America. Several high altitude species are known from Taiwan, Nepal, and the Philippines and 13 species are known from New Zealand, but the genus is absent from Indonesia, New Guinea, and Australia (Vockeroth 1990). Worldwide there are approximately 220 valid species of *Platycheirus* (Young 2013).

Species of the hoverfly genus *Platycheirus* Le Peletier & Serville, 1828 is characterised by a parallel-sided or narrowly oval abdomen. The abdomen is all black in a few species, but is normally grey to orange spotted. The fore legs – and sometimes also the middle pair – are often modified in the male.

Vockeroth in his revision of the Nearctic

Platycheirus (1990) separated the genus into five groups: the *granditarsis* group (now resurrected as genus by Young (2013)), the *albimanus* group (with six subgroups), the *ambiguus* group, the *stegnus* group (with two subgroups) and the *concinus* group.

Material and methods

Since my publication on European species of the *ambiguus* group (Nielsen 2004), additional Palaearctic material has been examined from Hungarian Natural History Museum Budapest (HNHMB), Netherlands Centre for Biodiversity Naturalis, Leiden (NCB), I.I. Schmalhausen Institute of Zoology, National Academy of Sciences, Kiev (ZISK), Zoological Institute St. Petersburg (ZISP), Zoological Museum, Moscow (ZMM), Zoological Museum of the Institute of Animal Systematics and Ecology RAS, Novosibirsk (ZMN), the collections of Dr. Thomas Romig, University of Hohenheim,

Institute of Zoology and of Dr. Sándor Tóth, Zirk, Hungary. Much of the material from these studies have been published (Barkalov & Nielsen 2004, 2008 a, 2008 b, Nielsen & Romig 2008 and Ssymank & Nielsen 2012), but parts of it will be published here.

Biometric values, flight period and distribution of the North American species are from Vockeroth (1990) and Andrew Young, Guelph (pers. comm.).

Description

The *ambiguus* group species are medium sized or small. They have slender legs, and the male has posteriorly on fore femur a row of straight normally black setae or setae-like hairs, the last seta is longer and tail-like, with the tip strongly curved. The *ambiguus* group females can be separated from females of other groups in short pale bristles on apical half of fore femur and also on long hairs only on katapisternum (A. Young and D. Doczkal respectively pers. comm.).

Platycheirus arnei sp. n.

Type material. *Holotype*: ♂ labelled “MONGOLIA, Central aimak Ulan-Baator, Nucht im Bogdo ul, 1650 m, Exp. Z. Kaszab, 1966” and “Nr. 493 4.VI.1966”, in coll. HNHMB. *Paratypes*: ♂ labelled as holotype, and 1♀ labelled “MONGOLIA: Central aimak 11 km S vom Pass Zosijn davaa, 90 km S von Ulan-Baator, 1650 m, Exp. Z. Kaszab, 1967” and “Nr. 922 15–16.VII 1967”; all in coll. HNHMB. 1♂ from KIRGIZISTAN, labelled “KYRG. N. 42° 43.2 E 74° 34.4, h=1060–1100 m, Chon-Aryk prope Bishkek, 20.06.1998 Korneyev & Kameneva” (in coll. ZISK); RUSSIA, 1♂ labelled “10 km S of Jakutsk 28.V.1985, leg. A. Barkalov” and 1♂ “23.V.2000 Kurgan Region, Lebyazhevskij District, Lis’e village, V. Sorokina coll” (both in coll. ZMN).

Diagnostic characters. A small species, about the size of *Melanostoma mellinum* (Linnaeus, 1758). Resembling *P. barkalovi* Mutin, 1990, the males of both species with tarsal segment 1 (and often segment 5) of fore and mid legs yellowish orange. The male has white hair-like

bristles posteriorly on fore femur (strong, black and apically slightly dilated and flattened in *P. barkalovi*). The fore tibia of *P. arnei* is without postero-lateral bristles (a few long bristles in *barkalovi*). Female with tarsus of p1 and p2 darkened, in *P. barkalovi* with basitarsus at least partly yellow.

Description (male) (Figure 1A).

Head. Eye angle 100°. Ocellar triangle bluish black with light grey dusting. Eye contiguity as long as the sides of vertical triangle. Frons and face with grey or greyish yellow dusting, the pile yellow white. Antennae black, 3rd segment a little longer than wide, sometimes reddish below at base. Occiput heavily greyish white dusted, white haired.

Thorax. Scutum and scutellum shining black, except for humerus grey dusted and the sides of thorax behind with light dusting. The hairs yellow white. Pleurae with light dusting, the hairs yellow white.

Wing. Stigma light greyish yellow. Wing cell bm micro-trichose apically, otherwise bare. Calypter and haltere yellow white.

Legs. Femora of all legs darkened (grey to greyish black) posteriorly, except for at base and extreme base. Fore femur posteriorly with a row of scattered black setae. Tibiae 1 and 2 dark grey on apical half, tibia 3 yellow only on basal ¼. Tarsi of p1 and p2 with segments 1 and 5 dark orange, segments 2–4 greyish black. Tarsus of p3 all dark, basitarsus slender.

Abdomen. Tergite ground colour greyish black with blue reflections. Tergites 2–4 each with a pair of silver-grey dusted spots, sometimes with a faint orange ground colour of the integument. The pile on the tergites light yellow.

Body length. Male 5.6–6.5 mm, female (n = 1) 6.2 mm. **Wing length.** Male 4.6–5.5 mm, female (n = 1) 5.4 mm.

Description (female) (Figure 1B).

Differs from the male as follows: frons with a pair of rather large dust spots, tarsi of p1 and p2 darkened and the tergite spots less dusted (shinier).

Flight period: ultimo May–mid August.

Distribution: Kirgizistan, Mongolia, Russia.

Etymology. The species is named in gratitude to my father, Arne Nielsen, my first teacher and



FIGURE 1A. *Platycheirus arnei* sp. n., male holotype. Photo: Karsten Sund (NHM, Oslo).



FIGURE 1B. *Platycheirus arnei* sp. n., female paratype. Photo: Kåre Solheim.

great source of inspiration in entomology.

The Species

Platycheirus abruzzensis (van der Goot, 1969) (Figure 2)

Melanostoma abruzzense van der Goot, 1969: 94

Diagnostic characters. Abdomen rather long, with oblique white dusted yellow spots on tergites 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. Female occiput behind vertical triangle only lightly dusted. 3rd antennal segment slightly elongate, about 1.5x longer than wide.

Additional material. 2♂♂2♀♀ paratypes



FIGURE 2. *Platycheirus abruzzensis* (v.d. Goot, 1969) male paratype. Photo: Karsten Sund (NHM, Oslo).

(coll. NCB); KAZAKHSTAN, Alma-Ata, M. Alm. Usj. 11.VIII.1957, 2♂♂ leg. Zhelokhovtsev; ARMENIA, Gosmalyan, south Lerik 21.V.1969 1♂ leg. L. Zimina and TURKMENISTAN, Kopet-Dag, Kara-Kala 10.V.1970 1♂ leg. L. Zimina, all in coll. ZMM. TUVA (see Barkalov & Nielsen 2008).

Body length. Male 7.8–8.4 mm, female 6.8–8.3 mm.

Flight period. 18 July–13 August.

Ecology. Between 1200–1300 m.a.s.l. (Abruzzi) and 1900 m.a.s.l. (Valais).

Distribution. Switzerland (alpine), Italy, Armenia, Turkmenistan and Kazakhstan.

Platycheirus altomontis Merlin & Nielsen, 2004 (Figure 3)

Platycheirus altomontis Merlin & Nielsen, in Nielsen 2004a: 4

Diagnostic characters. A small to medium sized species, the male with blue grey somewhat rounded 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.

Body length. Male 6.3–8.2 mm.

Flight period. July.

Ecology. Males were found on rocky slope, nearly without vegetation, at 3000 m.a.s.l.



FIGURE 3. *Platycheirus altomontis* Nielsen, 2004 male paratype. Photo: Kåre Solheim.

Distribution. High mountains of northern Italy.

***Platycheirus ambiguus* (Fallén, 1817)**

(Figures 4A–B)

Scaeva ambigua Fallén, 1817: 47

Diagnostic characters. A medium sized species. Male eye angle about 110–120°, haltere knob normally greyish brown. Female: tergites with rather faint grey spots which may be apparent only from some viewpoints, the spots are confluent basally.

Body length. Male 6.4–8.8 mm, female 6.7–7.8 mm.

Flight period. Ultimo March–ultimo June.

Ecology. Open deciduous forests, forest glades, hedgerows, gardens. Males often hover beside *Crataegus*, *Malus*, *Prunus spinosa*, *Salix*.

Distribution. Widespread in Europe, Siberia.

***Platycheirus arnei* Nielsen sp. n.** See above.

***Platycheirus barkalovi* Mutin, 1990**

(Figures 5A–B)

Platycheirus barkalovi Mutin, in Mutin & Barkalov 1990: 363

Diagnostic characters. Medium sized species, similar to *P. ambiguus* but with yellow basitarsus of fore and often mid legs, differing distinctly from the other darker tarsal segments. Male: eye angle 90°. Fore tibia postero-laterally in the middle with a few hairy bristles that do not quite reach the tip of tibia. A diagnostic character for this species is the setae on the posterior surface of fore femur which are slightly dilated and flattened



FIGURE 4A. *Platycheirus ambiguus* (Fallén, 1817) male. Photo: Kåre Solheim.



FIGURE 4B. *Platycheirus ambiguus* (Fallén, 1817) male fore femur. Photo: Kåre Solheim.



FIGURE 5A. *Platycheirus barkalovi* Mutin, 1999 male paratype. Photo: Kåre Solheim.



FIGURE 5B. *Platycheirus barkalovi* Mutin, 1999 male femur. Photo: Kåre Solheim.

towards their apices. Abdomen with dulled silver grey or yellow spots. Female: fore and mid femur and tibia yellow, the tibiae somewhat darkened on apical half. Hind legs with basal femur and tibia yellow. Abdomen with oblique suboval shining silver grey maculae, often centered by a yellow mark.

Material studied. RUSSIA, Komsomolsk-on-Amur, Silinskiy Park 13. and 19. V.1997 leg. V. Mutin, 2♂♂2♀♀ paratypes; same locality 9. V. 1990 1♂, on *Salix* sp., and Komsomolsk-on-Amur, Amurstalevskie Hills 13.V. 1996 1♂, all leg. and det. V. Mutin, in the author's collection. KAZAKHSTAN, Alma-Ata 16.VI.1946 1♂ leg. S. Eremeeva, in coll. ZMM.

Body length: 8.0–9.0 mm.

Flight period and ecology: May–June (August). Mainly a spring species, on late-blooming *Salix* spp., a few specimens also on *Caltha* and *Hylomecon* (Papaveracea) flowers. On two occasions a single female has been observed in early August. Found at edges of clearings and along roads in mixed forest on hills and valleys, in valley bushwoods with *Salix* spp. and in neglected gardens (Mutin pers. comm.)

Distribution. Russia: southern Khabarovskii krai, Amurskaya oblast', Primorie; southern Siberia, Kazakhstan.

Platycheirus brunneifrons Nielsen, 2004

(Figures 6A–B)

Platycheirus brunneifrons Nielsen, 2004a: 9

Platycheirus coerulescens sensu Mutin

Diagnostic characters. A slender, medium-sized species, resembling *P. albimanus* but the male with brownish pruinosity on frons and brownish abdominal spots. Fore tibia posterolaterally with long hairs, the longest reaching beyond the apex of the tibia.

Female (based on a single specimen). Frons shining bluish black with two triangular grey dust spots, together covering 2/3 the width of frons. Legs with femora 1-2 orange yellow, femur 3 with a broad black ring in the middle. Tibia 1-2 grey on their distal half, tibia 3 on the distal two thirds. All tarsi grey. Wing with base, stigma and veins yellow. Haltere and its knob yellow. Abdomen with tergites 2-4 each with a pair of orange brown



FIGURE 6A. *Platycheirus brunneifrons* Nielsen, 2004 male paratype. Photo: Kåre Solheim.



FIGURE 6B. *Platycheirus brunneifrons* Nielsen, 2004 female. Photo: Kåre Solheim.

oblique spots, their margins shining metallic blue.

Material studied. KAZAKHSTAN: Alma-Ata mountains 1800 m 4.VIII. 1978 1♂, leg. L. Zimina; RUSSIA: Amurskaya oblast, Zeya town 8. VIII. 1982 1♂, leg. A. Shatalkin; Bol'shoy Kan' on 22.IV.1977 1♂, leg. A. Shatalkin; Reserve Aksu-Dzhabagly 2. and 13.VI. 1966 2♂♂, leg. L. Zimina. In coll. ZMM; Altai, 25 km SW Argibasja, 2200 m tundra 14.VII.1991, A. Barkalov 1♂ and Amurskai obl., vicinity of city Tynda (55° 9' 0" N, 124° 43' 0" E) 4.VIII. 1990 1♀ leg. Mutin, in the author's collection.

Remarks: the female will be described when more material is available.

Body length: male 7.1–9.2 mm.

Flight period. Ultimo June – medio October.

Ecology. In *Fagus sylvaticus* mountain forests, at 1560 m.a.s.l. in northern Spain, in *Quercus pyrenaica* forests, at 1150 m.a.s.l. in central Spain, in Black spruce (*Picea mariana*) taiga in Alaska.

Distribution: Magadanskaya oblast, Amurskaya oblast, Khabarovskii krai, Primorie, Yakutia, West Europe, North America (Young 2013).

***Platycheirus caesius* Nielsen & Stuke, 2004**

(Figure 7)

Platycheirus caesius Nielsen & Stuke, in Nielsen 2004a: 11

Diagnostic characters. 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 *P. caesius* male has great resemblance to the *P. altomontis* male, 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.

Body length. Male 5.8–7.6 mm.

Flight period. primo June–ultimo July.

Ecology. Unknown.

Distribution. High mountains of northern Spain and of Switzerland (2200–2600 m.a.s.l.).



FIGURE 7. *Platycheirus caesius* Nielsen, 2004 male paratype. Photo: Kåre Solheim.

***Platycheirus claussemi* Nielsen, 2004**

Platycheirus claussemi Nielsen 2004a: 13

Diagnostic characters. Size about that of *P. ambiguus*. The male separates from *P. ambiguus* in the yellow haltere (dirty greyish brown in *P. ambiguus*) and fore femur behind with soft hair like bristles (strong bristles in *P. ambiguus*). The female 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 (more or less distinct grey markings in *P. ambiguus* female).

Body length. Male 8.2–9.6 mm, female 6.5–6.9 mm.

Flight period. Primo July–ultimo August.

Ecology. Along a stream with tall vegetation rich in blooming *Adenostyles alliaria*, in a humid meadow (Claus Claussen pers. comm.). Flowers visited: *Silene rupestris*.

Distribution. The high Alps of Austria (at 1800–2100 m.a.s.l.), Switzerland and Italy, Russia: Altai Mountains (Barkalov & Nielsen 2008), North America (Young 2013).

***Platycheirus coerulescens* (Williston, 1887)**

Melanostoma coerulescens Williston, 1887: 49

Diagnostic characters. Apical half or more of posterior surface of male fore femur with a regular row of five or more rather long stiff, slightly flattened bristles. Fore and mid tibiae postero-laterally with a row of rather long white bristly hairs, none of which are reaching beyond the tip of tibia.

Material studied. 3 males: Male “Doolittle Ranch, 9800’ Mt. Evans, COLO. 8-VIII B.H. Poole.” “Homotype *Melanostoma coerulescens* Will. Compared by Vockeroth ‘81”; male “Reindeer Depot, Mackernzie Delta 1-VIII-1948 J.R. Vockeroth, *Platycheirus coerulescens* Will. Det. 1981 J.R. Vockeroth” and male “USA, Alaska: Eagle Creek at Steese Highway NE Fairbanks (Subalpine forest, mixed hardwood) 31/7-1976 Arne Fjellberg leg.”, “*Platycheirus coerulescens* Will., Det. J.R. Vockeroth 1982”.

Body length. 5.7–9.1 mm.

Flight period. April to August.

Ecology. Unknown.

Distribution: Alaska, Canada, south in



FIGURE 8A. *Platycheirus fimbriatus* (Loew, 1871) male. Photo: Kåre Solheim.



FIGURE 8B. *Platycheirus fimbriatus* (Loew, 1871) male fore femur. Photo: Karsten Sund (NHM, Oslo).

western mountains to California and New Mexico.

***Platycheirus fimbriatus* (Loew, 1871)**

(Figures 8A–B)

Melanostoma fimbriatum Loew, 1871: 222

Diagnostic characters. Similar to *P. ambiguus*, but male eye angle only about 90°. The ground colour of the integument often with a brassy tinge and the strong bristles behind on fore femur decreasing distinctly in length towards apex of femur. The postero-lateral bristles on tibiae 1–2 are not quite reaching tip of the tibiae. Abdomen in both sexes with the tergite spots orange brown with light greyish white dusting.

Material studied. *Holotype.* RUSSIA, labeled “Kultuk, v. Maak”, “12902”, “Coll. H. Loew” and “*Syrphus fimbriatus* Lw.”, all white labels and “Typus” red label, in the collection of Museum für Naturkunde, Berlin. *Additional material.* – From coll. Zoological Museum, Novosibirsk: RUSSIA: Altai, 45 km E of Ust’-Ulagan, 2050-2200 m, 50,5°N, 88,6°E 18-19.VI.

2005 Malaise trap 1♂, A. Barkalov leg.; Tuva, Erzinskiy district, sand between river Tes-Hem and lake Tere-Xol’, 19.V.1988 14 ♂♂, leg. V. Zinchenko leg.; Baikal’skiy reserve, Tankhoy settlement 5–6.VI.1980 2♂♂, both leg. A. Barkalov; Buryat Autonom Republic, environs of Kyakhta town 10.V.1969 1♂, leg. Sinitina; Chita area, Kura district, Sokhondo State Reserve, valley of Tsanginandui (Pravaya Lukovaya) river, 1350–1400 m 1♂ leg. V. Pekin & D. Logunov; Chita area, Kura district, 3–5 km SE of Kura vill., valley of Kura river, 850 m 3.VI.1991 3♂♂, leg. V. Pekin & D. Logunov. – From coll. Zoological Museum, Moscow: RUSSIA: Buryat ASSR, environs of Kyakhta town 10.V.1969 1♂, leg. Sxxxxxx; Altai, 45 km E Ust’-Ulagan, 2050-2200 m, 50,5°N, 88,6° E 18–19.VI. 2005 Malaise trap 1♂, leg. A. Barkalov; Chita Area, Kyra Distr., 3–5 km SE of Kyra Vill., valley of Kyra river, 850 m., 3.VI.1991 3♂♂, leg. V. Pekin, D. Logunov; Chita Area, Kyra Distr., Sokhondo State Reserve, valley of Tsanginandui Pravaya, Lukovayal river, 1350–1400 m., 2.VI.1991 1♂, coll. V. Pekin, D. Logunov; Baikalskiy Reserve, Tankhoy settlement 5–6. VI.1980 2♂♂, leg. A. Barkalov; Tuva, Erzinskiy district, sands between river Tes-Hem and lake Tere-Xol’ 19.V.1988 14♂♂, leg. V. Zinchenko. – From coll. Zoological Institute, St. Petersburg (ZISP): MONGOLIA: Sutsukte valley, SW of Kentey, 18–29.V.1924 5♂♂ and 26.V.1924 1♂, 12–28.V.1925 3♂♂, all leg. Koslov; G. Sonchze, Kholt North Gobi 1–5.VIII. 1926, 2♂♂ leg. Koslov; Urga June 1925 1♂, leg. Koslov; 4 V. lower Zakamenn Lena, lower Zhigal 30.V.1925 1♂, Jakutskaya expediciya Ac. of Science, leg. L Bianki,; Sutszukte, S-E Kentey, N-W Urgi 12–25.V.1925 1♂, leg. Koslov; Dzherguchevsoe oz. environs of Kyakta 3.VI.1925 1♂, leg. Mikhno; environs of Troitskosavska, Keuchi 7.V. 1926 1♂, leg. Mikhno; Mongolia 1926 1♂ (no locality and collector mentioned); Central aimak, ur. Zaysan, N. slope of Bogdo-Ul mountain: 15.VI. 2♂♂, 18.VI. 1♂, 20.VI. 2♂♂ and 4.VII. 1967 1♂, all leg. Zaitzev; Central aimak Ulan-Bator, Nucht im Bogdo ul, 1650 m, Exp. Dr. Z. Kaszab, 4.VI. 1966 2♂♂; East-Gobi aimak, Cengel-Obo Mountain 11.VI.1971 1♂, leg. Koslov. – From coll. Museum and Institute of Zoology, Warszawa

(MIIZW): MONGOLIA, Gorchi 50 km NE Ulan Bator 24.V.1962 3♂♂3♀♀, leg. B. Piesarski & R. Bielawski. – From Natural History Museum of Budapest: MONGOLIA: Central aimak Ulan-Baator, Nucht im Bogdo ul., at 1650–1880 m, 3–10.VI.1966, 159♂♂174♀♀; Songino, 24 km SW von Ulan-Baator, 1300 m, 7.VI.1966 1♂1♀; 11 km S von Pass Zosijn davaa, 90 km S von Ulan-Baator, 1650 m 7.VI.1966 2♂♂1♀; Archangaj aimak, Changaj Gebirge, 8 km W von Somon Urdtamir, 1620 m 21.VII. 1966 1♀; Uva aimak, 3 km O von Somon Öndörchangai, 2200 m 11.VII.1968 1♂1♀. – HUNGARY: a male, examined by me, from the Bakony mountains at Zirc, at 450 m.a.s.l. 2.IV.1992, on blooming willow tree (*Salix*), leg. Sándor Tóth. A forested area, partly covered with beech (*Fagus*) and other deciduous trees (Tóth pers. comm.). New to the European fauna.

Short description (male).

Head. Eye angle 95–100°. Frons and face with grey dusting, except from lunula, facial stripe and mouth-edge shining black.

Thorax. Haltere faint orange. Tibia 1 posterolaterally on apical half with 3–4 yellowish white setae, they are only slightly longer than maximal thickness of tibia and do not reach to apex of tibia. Femur 1 behind with a row of long black bristles, the last 1–2 bristles are distinctly shorter than those behind. Basitarsus of hind legs slender.

Abdomen. The tergites with the maculae faint orange (or more rarely blue grey) with greyish white dusting. The hairs mainly white.

Short description (female).

Head. Face and occiput densely greyish white dusted. Frons with two large almost equilateral greyish white dust spots, frons white haired on ventral half, black haired on dorsal half. Antennal segments 1–2 black, 3rd segment reddish brown ventrally, dark brown dorsally.

Thorax. Scutum shining metallic bluish black with two faint longitudinal dust stripes, the hairs are short and white. Humerus and scutum laterally towards wing base with dense greyish white dusting. Scutellum shining steel blue, basally with a transverse narrow grey dust stripe. Pleurae with dense, greyish white dusting, white haired. Wing: alula yellowish white, haltere faint yellow orange.

Legs: femur 1–2 yellow orange, f3 broadly yellow at base, narrower yellow at apex. Femur 2 below with a longitudinal dark brown stripe. Tibia 1–2 yellow orange, apical third greyish brown; tibia 3 with basal third yellow.

Abdomen. Tergite 1 densely pollinose, contrasting with the surface of tergite 2. Tergites 2–4 each with a pair of rombic dark reddish brown spots, their postero-lateral corners are sloping outwards towards the tergite margins. The spots are covered with light greyish blue dusting which partly cover the pale ground colour of the spots. Tergite 5 black, but with a couple of small faint dust spots at base. Sternites 1–5 dulled by light grey dusting.

Body length. Male 7.5–9.4 mm, female 6.8–8.1 mm.

Flight period. April–June(August)?.

Ecology. On *Salix* in deciduous wood (Hungary).

Distribution. Mainly an East Palaearctic species; Central/Eastern Russia and Mongolia, but also one first record from Europe (see above).

***Platycheirus goeldlini* Nielsen, 2004**

(Figures: see original description).

Platycheirus goeldlini Nielsen, 2004a: 16

Diagnostic characters. Medium-sized species much resembling *P. claussemi*. The male differs in strong blunt-ending setae behind on fore femur (fine hair like setae in *P. claussemi*) and in longer bristles postero-laterally on apical half of fore and mid tibia. The female is similar to female *P. claussemi*, but the face is more protruding and the frontal dust spots narrower.

Additional material. From coll. ZMM: RUSSIA, Magadan oblast, Debin 21.VII.1963 1♂, leg. Zhelokovtsev; Reserve Aksu-Dzhabagly 11.V.1965 2♂♂, leg. L. Zimina. KAZAKHSTAN, Alma-Ata, M. Alm. Usj. 2500 m, 27. and 28. VII. 1957 2♂♂, leg. Zhelokovtsev; UZBEKISTAN, Tashkent 21.V.1923 1♂, leg. E. Smirnov.

Body length. Male 7.5–9.6 mm, female: 7.3–8.1 mm (n=2).

Flight period. Primo July–primo August.

Ecology. In Finland at lake shores, on flowering *Salix*.

Distribution. Finland, Alps of Switzerland

and Italy, Russia: Altai Mountains (Barkalov & Nielsen 2008a)

***Platycheirus immaculatus* Ôhara, 1980**

(Figures: see Nielsen 2004: 19)

Platycheirus immaculatus Ôhara, 1980: 138

Diagnostic characters. A small, slender and black species, may easily be confused with a dark *Melanostoma* Schiner, 1860. Male: head strikingly round. Eye angle 100–110°, abdomen dull black except terminalia 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.

Additional material. Bulgaria, male labelled “BG. Rodope hg. Scatovsa 1982.V.29. leg. Tôth S.” (Rodope Mts.), Szatovcsa).

Body length. Male 5.8–8.2 mm, female 6.2–7.3 mm.

Flight period. April–June.

Ecology. In forests, *Picea* wood glades and also in the herb layer of dark woods.

Distribution. Europe (central and southern parts), Eastern Russia, Japan.

***Platycheirus kashimircus* Nielsen, 2004**

(Figures 9A–B)

Platycheirus kashimircus Nielsen, 2004b: 31

Diagnostic characters. Similar to *P. ambiguus*, but smaller and with a broader occiput, a shorter eye contiguity and a smaller eye angle. The face widens downwards (eye margins not parallel), and face more produced than in *P. ambiguus*. The fore femur has a row of long, hair-like bristles postero-laterally.

Body length. Male (holotype) 6.4 mm.

Flight period. July.

Ecology. Collected at 5220 m.a.s.l., “bei Blüten”.

Distribution. Kashmir (Asia).



FIGURE 9A. *Platycheirus kashimircus* Nielsen, 2004 male holotype. Photo: Tore R. Nielsen.



FIGURE 9B. *Platycheirus kashimircus* Nielsen, 2004 male holotype, head in dorsal view. Photo: Tore R. Nielsen.



FIGURE 10A. *Platycheirus kelloggi* (Snow, 1895) male. Photo: Karsten Sund (NHM, Oslo).

***Platycheirus kelloggi* (Snow, 1895)**

(Figures 10A–B)

Melanostoma kelloggi Snow, 1895: 230

Diagnostic characters. A stout species with reddish orange spots on the tergites. Male fore femur posteriorly near apex with 2 or 3 long black hairs with curled apices which contrast with the preceding shorter dense pale hairs. Fore tibia posteriorly with dense fine pale hairs some of

TABLE 1. Preliminary key to species of the *Platycheirus ambiguus* group

Males: eyes meeting on frons	
1.	Abdomen all black with bluish reflections, without spots <i>P. immaculatus</i>
-	Tergites 2–4 with spots 2
2.	Halteres greyish brown 3
-	Halteres yellowish 4
3.	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 2 nd costal cell, 1 st and 2 nd cells bare, without microtrichiae. Eye angle about 110–120° <i>P. ambiguus</i>
-	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 2 nd costal cell, 1 st and 2 nd basal cells microtrichose. Eye angle 105–110° <i>P. lundbecki</i>
4.	Fore femur posteriorly with long fine dense mostly pale pili becoming slightly shorter toward apex and followed by two or three longer and stronger black pili with strongly curved apices 5
-	Fore femur posteriorly with strong bristles or bristly hairs 6
5.	A slender species, tergite 2 nearly 1.5x longer than broad <i>P. longicornis</i>
-	A robust species, tergite 2 about 1.5x broader than long <i>P. kelloggi</i>
6.	3 rd antennal segment long, about 2.2x longer than broad 7
-	3 rd antennal segment distinctly shorter 8
7.	The abdominal spots sub-rectangular and do not widen much outwards. The spots on tergite 4 widely separated. Wing more acute <i>P. subambiguus</i>
-	The abdominal spots more triangular, widening outwards. Those on tergite 4 connected in the middle. Wing tip more rounded <i>P. metallicus</i>
8.	Fore femur postero-laterally near apex with a row of hair-like bristles which are tapering towards their apices (Figure 17B) 9
-	Fore femur behind near apex with a row of strong bristles of uniform thickness and which narrow rather abruptly towards their spices (Figure 4B) 11
9.	Eyes touching for a very short distance only, shorter than the distance between the ocelli of vertical triangle. 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 <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 yellow-orange 10
10.	Fore tibia short haired, or postero-laterally with 1–2 bristles which are rarely longer than thickness of tibia. Fore femur postero-laterally with long hairs which are about as long as the maximum thickness of the femur. A rather short and broad-headed 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 Fore femur postero-laterally with long hairs, the longest exceeding the maximum thickness of the femur <i>P. clauseni</i>
11.	The setae postero-laterally on fore femur of about the same length 12
-	The setae postero-laterally on fore femur are distinctly shorter on apical 1/5 of femur. Scutum of thorax with long light hairs <i>P. fimbriatus</i>
12.	Fore and mid tarsus with segment 1 and often segment 5 yellow 13
-	The tarsi of all legs darkened 14
13.	Fore tibia postero-laterally on basal half with bristle-like hairs. The bristles behind on fore femur are <i>slightly broadened and flattened</i> on their apical half <i>P. barkalovi</i>
-	Fore tibia postero-laterally short haired only (or with a single bristle). The black bristles behind on fore femur are <i>spindle-like</i> (of same width) and not flattened on their apical half <i>P. arnei</i> sp.n.

TABLE 1. continued.

14.	Tarsi of all legs coal-black, contrasting well with the orange tibiae and femorae	<i>P. nigritaris</i>
-	Tarsi with the segments greyish to greyish yellow	15
15.	Fore tibia short haired, or with one or two setae-like hairs postero-laterally	16
-	Fore tibia postero-laterally with setae-like hairs	20
16.	Face with a broad, shining black stripe in the middle, covering about 1/3 the width of face. Tergite 5 glittering black with a brassy luster, contrasting from the subdull black ground colour of other tergites. Wings rather broad, twice the width of tergite 3. Frons white haired	<i>P. pusillus</i>
-	Face with only a narrow black median stripe, covering about 1/5 the width of face. Tergite 5 shining black, without brassy luster. Wings narrower. Hairs on frons black or white	17
17.	The tergite spots undusted in the middle. Those on tergite 3 situated at front margin of the tergite. Eye angle 90°	<i>P. transbaikalicus</i>
-	The tergite spots dusted and situated on some distance from front margin of the tergites. Eye angle 100 - 105	18
18.	Abdomen as long as or longer than the wings. Frons and vertical triangle sometimes partly white haired	<i>P. abruzzensis</i>
-	Abdomen shorter than the wings. Frons and vertical triangle black haired	19
19.	The setae behind on fore femur are as strong as the tarsus claws. The hairs at tip of scutellum as long as the scutellum	<i>P. tuvaensis</i>
-	The setae behind on fore femur not as strong as the tarsus claws. The longest hairs at tip of scutellum are distinctly longer than scutellum	<i>P. meridimontanus</i>
20.	Frons covered by dark brown pollinosity. Mid femur postero-laterally with rather long black hairs which are not longer than the maximum of the femur. Hind basitarsus moderately swollen, only slightly thicker (1.2x) than the tibia at its apex. Spots on tergites rather small, orange brown or greyish	<i>P. brunnicornis</i>
-	Frons covered by grey pollinosity	21
21.	Eyes touching for a short distance only, about 2/3 the length of 3 rd antennal segment. Post-ocular orbits on each side of vertical triangle at least as broad as the distance between the ocelli. Face widening downwards	<i>P. kashmiricus</i>
-	Eyes touching for a longer distance. Post-ocular orbits narrower. Face not widening downwards, the sides parallel	22
22.	Fore femur black except for tip narrowly yellow. Fore tibia bare or postero-laterally with a few scattered short bristly hairs, which are not much longer than thickness of tibia	<i>P. caesius</i>
-	Fore femur yellow to greyish yellow. Fore tibia postero-laterally with a number of bristly hairs which are nearly 2x as long as thickness of tibia	23
23.	Fore tibia postero-laterally on apical half with setae like hairs, none of which reach beyond the tip of tibia	<i>P. coeruleascens</i>
-	Fore tibia postero-laterally on apical half with setae like hairs, the longest reaching beyond tip of tibia and on to basal 1/4 - 1/3 of basitarsus	<i>P. goeldini</i>

Females: eyes widely separated on frons. Females of *P. altomontis*, *P. caesius*, *P. kashmiricus*, *P. longicornis*, *P. meridimontanus*, *P. subambiguus*, *P. transbaikalicus* and *P. tuvaensis* are unknown.

1.	Tergites all black, or rarely with faint yellowish spots. Fore and mid legs yellow, the femora sometimes darkened on basal half. A small and slender species, the tergites longer than wide (in black <i>Melanostoma</i> females the tergites are wider than long)	<i>P. immaculatus</i>
-	Tergites 2-4 with spots	2
2.	Fore tarsus with segments 1 and 5 yellow, segments 2-4 dark grey	<i>P. barkalovi</i>
-	Fore tarsus with all segments darkened	3
3.	Tergites 3-4 with metallic grey spots or bands	4
-	Tergites 3-4 with yellow or orange spots	6
4.	Fore femur black, only tip narrowly yellow	<i>P. lundbecki</i>

TABLE 1. continued.

- Fore femur yellow	5
5. Tergite 3 on anterior half with two shining metallic grey spots, the spots connected anteriorly	<i>P. ambiguus</i>
- Tergite 3 on anterior half with a broad transverse metallic grey band	<i>P. metallicus</i>
6. Tergite 2 distinctly wider than long (distance between anterior midpoint and hind margin)	7
- Tergite 2 as wide as long, or longer than wide	8
7. Tergite 2 nearly twice as wide as long. Hind femur orange	<i>P. kelloggi</i>
- Tergite 2 only slightly wider than long. Hind femur black except for narrowly yellow at base and tip	<i>P. transfugus</i>
8. Humerus, the sides of scutum and pleurae heavily greyish dusted, much contrasting from the shining part of scutum. Scutum also with two vague longitudinal dust stripes	<i>P. fimbriatus</i>
- Humerus and pleurae only slightly dusted. Scutum without dust stripes	9
9. Tarsi coal-black, much contrasting with the basal orange part of the tibiae	<i>P. nigriraris</i>
- Tarsi greyish	10
10. About central half of face glittering black, face somewhat produced	<i>P. pusillus</i>
- Face only with a narrow, undusted medial black stripe	11
11. The abdominal spots on tergites 3–4 are reaching base of the tergites	<i>P. coerulescens</i>
- The abdominal spots on tergites 3–4 are not reaching base of the tergites	12
12. Frontal dust spots spreading broadly (as broadly as the width of 3rd antennal segment) along the eye margins towards face	<i>P. clauseni</i>
- Frontal dust spots spreading narrowly along the side margins	13
13. Sternites short haired, the hairs only about as long as thickness of hind tibia	<i>P. brunnicornis</i>
- Sternites with longer hairs, longer than thickness of hind femur	14
14. Hind basitarsus somewhat thickened, about 1.2 times thicker than hind tibia at apex. Hind femur postero-laterally long haired, the hairs longer than thickness of femur	<i>P. goeldini</i>
- Hind basitarsus slender, as thick as hind tibia at apex. Hind femur postero-laterally with hairs which are not longer than thickness of femur	15
15. Tergite 2 as long as wide or slightly longer. Hind tibia at base broadly (about 40 %) yellow. Medium sized species	
.....	<i>P. abruzzensis</i>
- Tergite 2 (at apex) wider than long. Hind tibia at base narrowly (20–25 %) yellow. Small species	<i>P. arnei</i>

which are longer than tibia diameter. Tergites 2–4 each with a pair of orange spots. Female abdomen rather broad and short and the orange spots on tergite 3 much broader than long.

Body length. 7.7–10.1 mm.

Flight period. June–August.

Ecology. Unknown.

Distribution. Nearctic: western Canada, western USA.

Platycheirus longicornis Peck, 1979

(Figures 11A–B)

Platycheirus longicornis Peck, 1979: 463

Platycheirus asiomontanus Skufjin, 1987: 37, **syn. nov.**

Diagnostic characters. Male: Head: eye angle

100°. Antennae black and longish, 3rd joint much longer than wide. Frons and face (except facial tubercle) dulled by light whitish dusting, both white haired. Face somewhat produced. Thorax: scutum and scutellum shining metallic black, the hairs whitish yellow. Legs: fore femur behind with many soft bristly white hairs, their tips wavy. Femur at the apex with two long white curled hairs. Fore tibia posterolaterally with a few white long hairs on apical half. Mid femur below with 2–3 long yellow setae. Wing: veins and stigma light orange brown, calypter and haltere orange. Abdomen: tergites 2–4 with squarish orange spots with transverse silvery white dusting, the



FIGURE 10B. *Platycheirus kelloggi* (Snow, 1895) female. Photo: Kåre Solheim.



FIGURE 11A. *Platycheirus longicornis* Peck, 1979 male paratype. Photo: Karsten Sund (NHM, Oslo).



FIGURE 11B. *Platycheirus longicornis* Peck, 1979 male, fore femur. Photo: Tore R. Nielsen.



FIGURE 12. *Platycheirus lundbecki* (Collin, 1931) male. Photo: Kåre Solheim.

hairs light yellow. Sternites black, dulled by light whitish dusting.

Female. Unknown.

Body length (of one paratype): 7.9 mm, *wing length*: 6.5 mm.

Flight period. Ultimo June–July.

Ecology. Unknown.

Distribution. Mongolia.

Synonymy. I have compared the *P. asioambiguus* holotype and a *P. longicornis* paratype (both coll. ZISP) and found them conspecific, **syn. nov.**

***Platycheirus lundbecki* (Collin, 1931)**

(Figure 12)

Melanostoma lundbecki 1931: 68

Platycheirus fjellbergi Nielsen, 1974: 167

Diagnostic characters. A rather small species with well-defined bluish grey spots on the tergites. Male eye angle 110°. The male resembles *P. caesius*, but differs in the colour of scutum, scutellum and tergites 1–2, in the bristly hairs of fore tibia and other characters (see key). Female similar to *ambiguus* female, but tergites with easily visible spots which are well separated and never confluent.

Body length. Male 5.7–7.2 mm, female 5.1–7.6 mm.

Flight period. Ultimo June–primo August.

Ecology. Subalpine forest and open ground, besides lakes in tundra (on *Salix*) and in arctic-alpine tundra.



FIGURE 13. *Platycheirus meridimontanus* Nielsen, 2004 male paratype. Photo: Kåre Solheim.



FIGURE 14. *Platycheirus metallicus* Barkalov & Nielsen, 2004 male. Photo: Kåre Solheim.

Distribution. A circumpolar species: North Siberia, North Europe, North America, Greenland.

***Platycheirus meridimontanus* Nielsen, 2004** (Figure 13)

Platycheirus meridimontanus Nielsen, 2004a: 20

Diagnostic characters. A medium-sized species, male resembling *P. abruzzensis* with fore tibiae only short haired, but differing in e.g. black hairs on frons, in a broader abdomen and the spots on tergites 3–4 are lying at base of the tergites (at some distance from base in *P. abruzzensis*).

Female. Unknown.

Body length. Male 9.0–9.6 mm.

Flight period. End May – mid June.

Ecology. Unknown.

Distribution. Mountainous areas of Macedonia and the Lebanon.



FIGURE 15. *Platycheirus nigratarsis* Ssymank & Nielsen, 2012 male holotype. Photo: Axel Ssymank.

***Platycheirus metallicus* Barkalov & Nielsen, 2004** (Figure 14)

Platycheirus metallicus Barkalov & Nielsen, 2004: 123

Diagnostic characters. A rather small and slender species. Male: 3rd antennal segment extended, 2.1–2.3 times longer than broad. Tergite 1, basal half of tergites 2–4 and all tergite 5 metallic bluish grey. Tergites 2–3 each with a couple of whitish pollinose spots upon the metallic parts, not reaching base of the tergites. – Female: similar to male, but abdomen shining metallic black with 3 pairs of faint grey spots.

Body length. Male 6.4–7.3 mm, female 5.7 mm.

Flight period. May.

Ecology. The Dushak mountains, at 1900–2000 m.a.s.l.

Distribution. Turkmenistan.

***Platycheirus nigratarsis* Ssymank & Nielsen, 2012** (Figure 15)

Platycheirus nigratarsis Ssymank & Nielsen, 2012: 31

Diagnostic characters. Similar to *P. clausseni* and *P. goeldlini*. It differs in the coal-black tarsi, the male abdomen is slightly club shaped and in female *P. nigratarsis* the abdominal spots on tergite 3 are lying close to base of tergite (on some distance in *P. clausseni* and *P. goeldlini*).

Body length. Male 9.3 mm, female 8.4 mm.

Flight period. July.

Ecology. Meadows between 2700–2900 m.a.s.l.



FIGURE 16A. *Platycheirus pusillus* Nielsen & Romig, 2010 male holotype. Photo: Karsten Sund (NHM, Oslo).



FIGURE 16B. *Platycheirus pusillus* Nielsen & Romig, 2010 female paratype. Photo: Kåre Solheim.



FIGURE 16C. *Platycheirus pusillus* Nielsen & Romig, 2010 head of female paratype. Photo: Tore R. Nielsen.

Distribution. Kirghizia, Tienshan-mountains, south and west of Bishkek.

***Platycheirus pusillus* Nielsen & Romig, 2010**
(Figures 16A–B)

Platycheirus pusillus Nielsen & Romig, 2010: 1

Diagnostic characters. A small species, about the size of a small *Melanostoma mellinum* (Linnaeus, 1758), with a shiny, brassy integument and bright yellow oblique abdominal spots. Male resembles *P. abruzzensis* and *P. transfugus*, but separates from those in e.g. a rather produced face and a broad, shining median stripe in face. The broad, shining black median stripe is also a character of the female.

Body length. Male 5.6–6.1 mm, female 5.5 mm.

Flight period. July.

Ecology and distribution: in the extreme northwest of Sichuan (Serxu Co.), a part of the Tibetan plateau at 4100–4600 m.a.s.l. The landscape is characterized by grass-covered hills – only at few places with exposed rock – and small rivers in the valleys, which are often bordered with some taller herbaceous vegetation. Woody plants are absent with the exception of dwarf *Salix* shrubs to 1m high, which occur in patches on some of the hills.

***Platycheirus subambiguus* Nielsen, 2004**

(Figures: see original description)

Platycheirus subambiguus Nielsen, 2004a : 23

Diagnostic characters. Male: similar to *P. ambiguus*, but characterised by its distinctly longer 3rd antennal segment. The haltere knob is yellow white (normally greyish brown in *P. ambiguus*) and calypter white (light grey and rim darkened in *P. ambiguus*). The hairs on scutum are silky white and shorter, about as long as thickness of fore femur (light grey and longer in *P. ambiguus*, about as long as 1.5 x the thickness of fore femur in *P. ambiguus*). The abdominal spots are rectangular and of about same width (subtriangular and broadest towards the sides in *P. ambiguus*).

Female. Unknown.

Body length. Male 8.2–9.1 mm.

Flight period. May.

Ecology. Collected on flowering *Salvia pratensis*.

Distribution. Southeastern Europe (Croatia, Hungary).

***Platycheirus transbaikalicus* Barkalov & Nielsen, 2009** (Figures: see original description).

Platycheirus transbaikalicus Barkalov & Nielsen, 2009: 5

Diagnostic characters. Male. *P. transbaikalicus* has great resemblance to *P. transfugus*. Both species have a shiny metallic mesonotum, tergites 2–4 with oblique orange spots and fore tibia short-haired, without long setae postero-laterally. *P. transbaikalicus* male differs from male *transfugus* in a longer 3rd antennal segment, a less swollen frons, eye angle about 90° (105–110° in *transfugus*), face narrower and lower part of face more nosy. Fore femur behind with pin like setae (soft bristly hairs in *transfugus*), and tergites 2–3 of the abdomen narrower. The yellow spots on tergite 3 are close to front margin of tergite (less so in *transfugus*).

Female. Unknown.

Body length. 7.4 mm.

Flight period. Medio June (holotype).

Ecology. Unknown.

Distribution: Transbaikal (eastern Russia).

***Platycheirus transfugus* (Zetterstedt, 1838)** (Figures 17A–C).

Scaeva transfuga Zetterstedt, 1838: 607

Platycheirus celsus Violovitsh, 1975: 74 (syn. Nielsen 1999: 41)

Diagnostic characters. A 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, their tips are fine.

Body length. Male 5.5–7.9 mm, female 6.2–7.4 mm.

Flight period. medio May-ultimo July.

Ecology. In open deciduous or coniferous forests, or in meadows of wooded areas. More rarely in subalpine and alpine areas.

Distribution: northern and central Europe, Kazakhstan, Middle Asia, Mongolia, Russia.



FIGURE 17A. *Platycheirus transfugus* (Zetterstedt, 1838) male. Photo: Frank Arild Strømme.



FIGURE 17B. *Platycheirus transfugus* (Zetterstedt, 1838) male fore femur. Photo: Kåre Solheim



FIGURE 17C. *Platycheirus transfugus* (Zetterstedt, 1838) female. Photo: Frank Arild Strømme.



FIGURE 18. *Platycheirus tuvaensis* Barkalov & Nielsen, 2008 male paratype. Photo: Karsten Sund (NHM, Oslo).

***Platycheirus tuvaensis* Barkalov & Nielsen, 2008**
(Figure 18)

Platycheirus tuvaensis Barkalov & Nielsen, 2008 : 223

Diagnostic characters. Male. Similar to *P. abruzzensis*, *P. transbaikalicus* and *P. transfugus*. The *tuvaensis* male differs from male *P. abruzzensis* in stronger setae behind on fore femur and below at base of mid femur. The setae are about as strong as the claws at the end of last tarsal segment, male *P. transbaikalicus* in a narrower eye angle (about 105° in *P. tuvaensis* versus 90° in *P. transbaikalicus*), the long hairs on posterior part of mid femur are black (yellow in *P. transbaikalicus*) and the abdominal spots are dulled by greyish dusting (orange, undusted in *P. transbaikalicus*), male *P. transfugus* which has weak, hair-like bristles behind on fore femur and below at base of mid femur. 3rd antennal segment is longer (about 1.6 times longer than wide in *P. tuvaensis*, 1.3 times longer than wide in *P. transfugus*);

Female. Unknown.

Body length. Male 7.6–8.4 mm.

Flight period. Medio May–July.

Ecology. taiga mountain, 3100–500 m.a.s.l. (male types).

Distribution: Tuva (southern Russia).

Discussion

Males.Head: specific characters may be found in the density and coloration of the frons dusting,

from silver grey (as in most species) to dark brown (as in *P. brunnifrons*). 3rd antennal segment is short in most species, but may be longer (as in *P. metallicus* and *P. subambiguus*).

Legs: Most species have greyish coloured fore tarsi, but there are exceptions (yellow segments in *barkalovi* and *arnei* sp.n. and all black in *P. nigritarsis*). Fore and mid tibia may be “bare” (very short hairs only), without bristly hairs postero-laterally (as is normal in *P. transfugus*) or with such hairs (as in *ambiguus*). The bristles/hairs may be short or long, reaching or not reaching beyond the tip of tibia.

The setae behind on fore femur may be different in length and shape. In most species they are of about the same length, but in *fimbriatus* the last apical setae are shorter than the basal ones (Figure 8B). The fore femur setae may be strong, of same thickness and pin like (as in *ambiguus*) or hair like and gradually tapering towards apex (as in *P. altomontis*, *P. clausseni* and *P. transfugus* (Figure 17B). In *P. barkalovi* the apical setae are slightly widened and flattened towards their tips (Figure 5B), while they are soft and wool-like in *P. kelloggi* and *longicornis* (Figure 11B). Hind basitarsus of the male may be slender or thickened (as in *P. altomontis*).

Abdomen: shape of the tergites and the abdominal spots may give additional information. *P. abruzzensis* has a slender and longish abdomen with tergite 2 longer than wide, while the abdomen in e.g. *P. kelloggi* is short and broad with tergite 2 wider than long.

Females. The female characters are less distinct and females of many species are therefore still unknown. But useful characters may be: the colour of fore and mid femur. In many species the females have yellow or orange fore and mid femora. In a few (*P. lundbecki* and probably *P. altomontis* and *P. caesius*, both undescribed) the femora are black except for base and tip narrowly yellow, the colour of the fore and mid leg tarsi. Also females normally have greyish tarsi, but exceptions are *P. barkalovi* (yellow basitarsus of fore legs) and *P. nigritarsis* (black tarsi), and width of the abdominal

tergites (2nd tergite of *P. abruzzensis* is longer than wide, 2nd tergite of *P. kelloggi* is much wider than long).

Ecology. Even if the available material of the group is rather scarce, it indicates that the *ambiguus*-group species seem to be cold adapted species, adapted to the rather low temperatures in spring or in alpine areas.

P. ambiguus has its flight period in April-May and *P. transfugus* in May-June in the lowland areas, while the majority of the known species have their home in high mountains. Examples are the records of *P. altomontis* at 3000 m.a.s.l., *P. kashmiricus* at about 5000 m.a.s.l., *P. pusillus* at 4100–4600 m.a.s.l., *P. tuvaensis* at 3000–3500 m.a.s.l. and *P. nigratarsis* at 2700–2900 m.a.s.l.. The material from such altitudes is dominated by males and may to some degree be influenced by “hill topping” effect: active males lifted by warm winds to the mountain peaks.

P. brunnifrons differs in having a delayed flight period compared to other species, from the end of June till mid October and with a peak in late summer /early autumn.

The larva of the different species is supposed to eat aphids, like other species of the genus.

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