

# Description of and key to the European females of the *Platycheirus peltatus* sub-group (Diptera, Syrphidae), with a description of the male and female of *P. islandicus* Ringdahl, 1930, stat.n.

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Description of and key to the European females of the *Platycheirus peltatus* sub-group (Diptera, Syrphidae), with a description of the male and female of *P. islandicus* RINGDAHL, 1930, stat.n.

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The females of the European species of the *Platycheirus peltatus* sub-group are described. A key is provided to them and figures of all species are given. The females of *Platycheirus amplus* CURRAN, *Platycheirus holarcticus* VOCKEROTH, *Platycheirus islandicus* RINGDAHL and *Platycheirus nielseni* VOCKEROTH are described for the first time. The male of *Platycheirus islandicus* is redescribed and compared with the male of *Platycheirus peltatus*.

Keywords: *Platycheirus peltatus* sub-group, European females, key, first description, *Platycheirus islandicus* stat.n.

## INTRODUCTION

The genus *Platycheirus* LEPELTIER & SERVILLE, 1828, is predominantly arctic and markedly boreal. Of the 70 nearctic species, 45 occur in the boreal zone of Alaska and Canada, about 23 species are known to be holarctic. In the Palaearctic Region there are 55 known species of which about 30 in the boreal zone. A few more species are present in Central and South America. In the Oriental Region, they occur only at high altitudes, in Taiwan, the Philippines and Nepal. In New Zealand the genus is well represented but is apparently absent from Indonesia, New Guinea and Australia (PECK, 1988; VOCKEROTH, 1990; MAIBACH *et al.*, 1992).

The *Platycheirus* species are slender to robust with a completely black face and thorax. The abdomen is black with paired yellow, silver-greyish, or bluish spots, sometimes almost completely black or yellow to orange. Male legs, especially front legs, are characterised by distinctive hair tufts, and modified hairs or distinct bristles. They often have modified front tarsus and femur.

VOCKEROTH (1990) divides the nearctic species of *Platycheirus* in five groups: *granditarsis*, *albimanus*, *ambiguus*, *stegnus*, and *concinus*. The *peltatus* group is a sub-group within the *albimanus* group. The division is mainly based on characteristics of the male legs and the females of most species cannot be definitely identified. The known European species of the *peltatus* sub-group are: *P. amplus* CURRAN, *P. holarcticus* VOCKEROTH, *P. islandicus* RINGDAHL, stat.n., *P. jaerensis* NIELSEN, *P. nielseni* VOCKEROTH, and *P. peltatus* (MEIGEN) (PECK, 1988; VOCKEROTH, 1990; VAN DER LINDEN, 1991).

For a good understanding of the distribution of the species, it is necessary to identify the females as well. The aim of this study was to provide characteristics for the identification of the European females of the *peltatus* sub-group.

VOCKEROTH (1990) included *P. parmatus* in the *scambus* group but stated, “*P. parmatus* should perhaps be referred to the *peltatus* group”. *P. parmatus* is here

included in the *peltatus* sub-group on account of the similarity of features to the other females of this group.

Of the seven species, only the females of *P. parmatus* (DUŠEK & LÁSKA, 1970, as *P. ovalis*) and *P. jaerensis* (NIELSEN, 1971) are described. NIELSEN (1971) also gave the diagnostic characteristics differentiating *P. jaerensis*, *P. peltatus*, and *P. parmatus*. *P. amplus* has recently been found in Europe (SPEIGHT & VOCKEROTH, 1988), but VOCKEROTH (1990) did not give a description of the female. *P. holarcticus* was described as *Scaeva rostrata* from Sweden and considered as a synonym of *P. peltatus*. VOCKEROTH (1990) found that it was a separate species but he did not describe the female. From the new species *P. nielsenii*, only the male was described (VOCKEROTH, 1990). RINGDAHL (1930) described *P. islandicus* as a var.n. of *P. peltatus* but he did not describe the female. For all the species, except *P. islandicus* and *P. peltatus*, VOCKEROTH (1990) states that the females are not distinguishable from those of several similar species.

The most striking characteristics for identification of the males are the leg modification which are not present in females, except for the female of *P. nielsenii* which has got a modified middle tibia. There are some other characteristics such as hairs on pleurae, face profile, and shape and size of abdominal spots which are con-specific in the females.

#### MATERIAL AND METHODS

The material studied is deposited in the following institutes: Instituut voor Taxonomische Zoologie, Amsterdam (The Netherlands); Natur Historiska Riksmuseet, Stockholm, and Naturhistoriska Museum, Göteborg (both Sweden); Musée de Zoologie, Lausanne (Switzerland); Zoological Museum of Helsinki (Finland), and the private collections of J.A.W. LUCAS, Rotterdam; H. VAN STEENIS, Dordrecht, and W. VAN STEENIS, Wageningen, all in the Netherlands; T.R. NIELSEN, Sandnes (Norway); H. BARTSCH, Stockholm, and J. VAN STEENIS, Uppsala, both in Sweden. All specimens studied come from North and Central Europe.

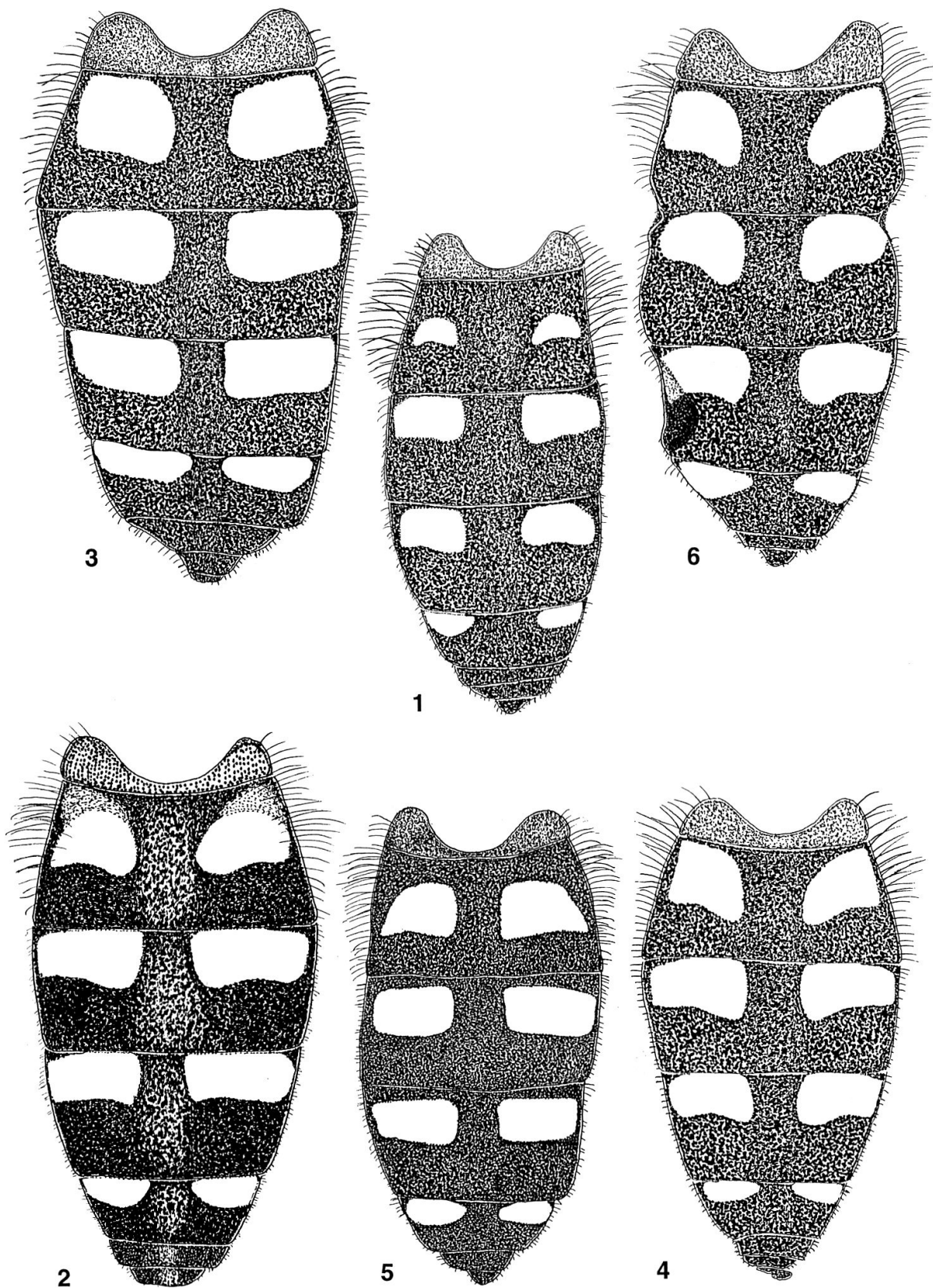
The terminology used is mainly based on VOCKEROTH (1990). These terms are generally well known and need no explanation.

#### KEY TO THE EUROPEAN FEMALES OF THE *PLATYCHEIRUS PELTATUS* SUB-GROUP

The females of the seven species (*P. parmatus* included) have the following characteristics in common:

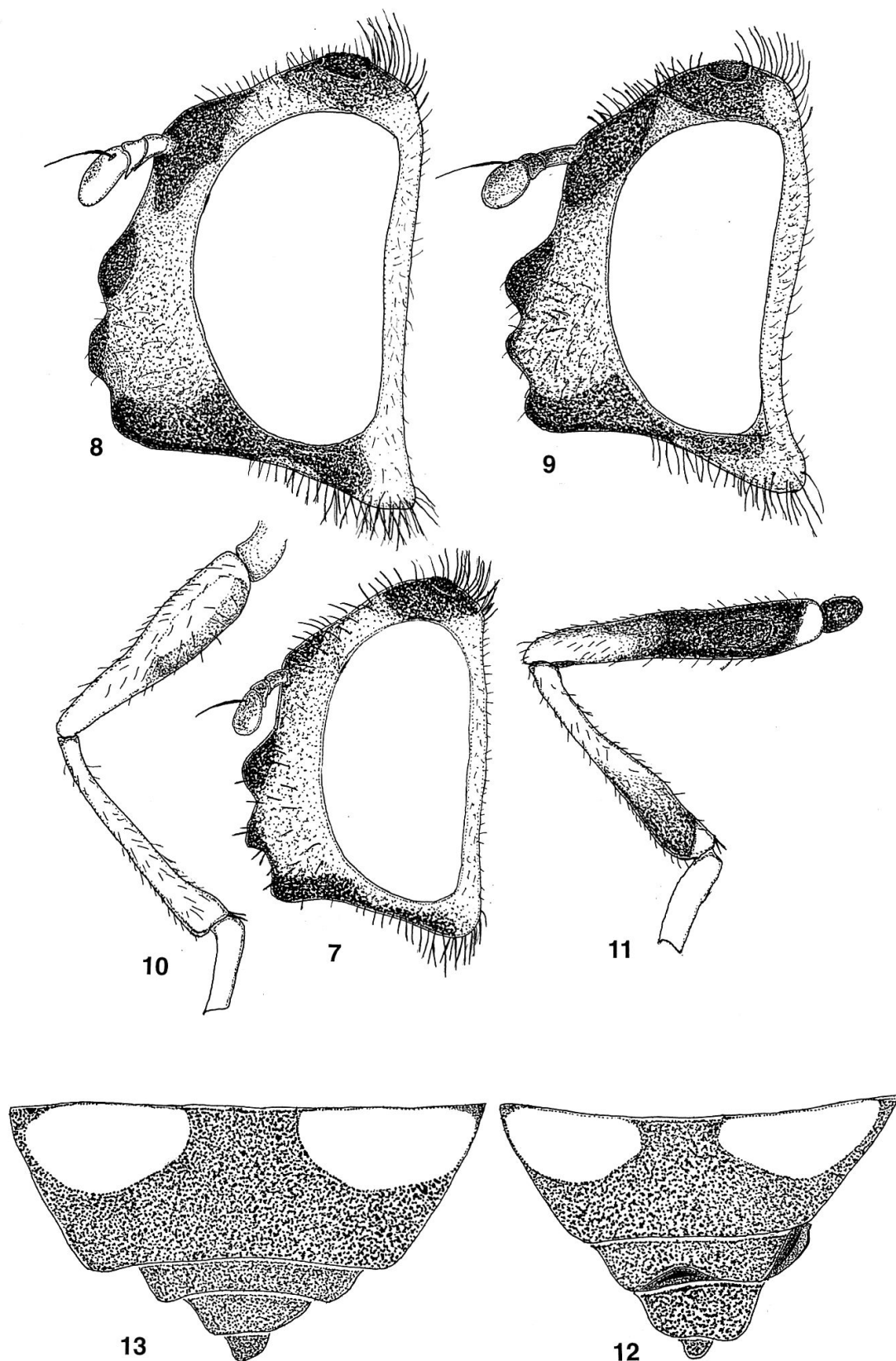
- robust flies (7–10.5 mm),
- face protrudes forwards and downwards,
- abdomen with large subquadrate, subrectangular or sub-triangular paired spots on tergites 2–5,
- base of third femur yellow, except in *P. islandicus* where it is black,
- at least third antennal segment reddish-orange ventrally,
- significant depression on the front side of femur 2.

- 1 Anepimeron with long hairs, evenly spread, wavy on top, and never forming a compact tuft (Figs 16–17). Longest katapisternal hairs at least  $\frac{1}{2}$  as long as arista (Figs 19–20). Pleurae shiny, faintly dusted ..... 2
- Anepimeron with long hairs confined to dorsal part, sometimes forming a compact tuft, and sometimes with a few shorter hairs on ventral part (Figs 14–15). Longest katapisternal hairs short, about a quarter as long as arista (Fig. 18). Pleurae dull, densely dusted ..... 3



Figs 1–6. Female abdomens. 1) *Platycheirus amplus* (Belgium); 2) *Platycheirus holarcticus* (Sweden); 3) *Platycheirus jaerensis* (Norway); 4) *Platycheirus nielsenii* (Austria); 5) *Platycheirus parmatus* (the Netherlands); 6) *Platycheirus peltatus* (Austria).





Figs 7–13. 7–9: Heads in sub-profile, showing pollinosity on frons, and facial profile. 7) *Platycheirus amplus* (Belgium); 8) *Platycheirus jaerensis* (Norway); 9) *Platycheirus parmatus* (The Netherlands). – 10–11: Middle leg. 10) *Platycheirus jaerensis* (Sweden); 11) *Platycheirus parmatus* (The Netherlands). – 12–13: Abdominal segments 5–8. 12) *Platycheirus nielseni* (Switzerland); 13) *Platycheirus peltatus* (Sweden).

- 2 Femora 1–3 with black ring (Fig. 11). First and second antennal segment black. Frons with well-defined triangular pollinose spots, occupying less than  $\frac{1}{3}$  of frons. Facial tubercle projecting, well-defined (Fig. 9). Anepimeron completely covered with long hairs. Hairs on anepisternum reach backwards as far as the end of the anepimeron (Fig. 17). Abdominal spots all well separated from anterior margins of the tergites (Fig. 5) ..... *Platycheirus parmatus*
- Femora 1–2 without black ring (Fig. 10). First and second antennal segment orange. Frons with ill-defined pollinose spots, occupying about  $\frac{1}{3}$  of frons. Facial tubercle inconspicuous and ill defined (Fig. 8). Anepimeron without long hairs on ventral  $\frac{1}{4}$  to  $\frac{1}{3}$ . Hairs on anepisternum reach backwards to the middle of the anepimeron (Fig. 16). Abdominal spots on tergites 3 and 4 reach anterior margins of the tergites (Fig. 3) ..... *Platycheirus jaerensis*
- 3 Base of all femurs black. Hairs on mesonotum and scutellum black, except in front of transverse suture where they are silvery. Spots on tergites 2–5 strongly reduced, ill defined, brownish. Exterior fringe of femur 1 with long black hairs ..... *Platycheirus islandicus*
- Femora 1–2 yellow, as well as base of femur 3. Hairs on mesonotum and scutellum predominantly or entirely yellow. Spots on abdomen, at least on tergites 3–5, well defined, yellow to reddish. Exterior fringe of femur 1 with medium size yellow hairs ..... 4
- 4 Spots on tergites 3 and 4 subrectangular, sometimes separated from anterior margins of the tergites, anterior (and posterior) margins of the spots almost straight. Spots on tergite 2 kidney-shaped to semicircular, well separated from anterior margins of the tergites, sometimes reduced and ill defined (Figs 1, 2) ..... 5
- Spots on tergites 3 and 4 trapezium-shaped, anterior margins of spots convex, separated from anterior margins of the tergites in lateral corners of the spots, posterior margins of the spots concave, sometimes reduced. Spots on tergite 2 subtriangular close to anterior margin of the tergite, sometimes reduced and ill defined (Figs 4, 6) ..... 6
- 5 Anepimeron with the long hairs on dorsal part forming a compact tuft with a silvery shine, hair base not visible, ventral part bare (Fig. 15). Frons with clearly defined triangular greyish pollinose spots, occupying about  $\frac{1}{3}$  of frons. Spots on tergites 3 and 4 about twice as broad as long (Fig. 2). Third tergite about twice as broad as long ..... *Platycheirus holarcticus*
- Anepimeron with the long hairs on dorsal part less dense, hair bases visible, ventral part with a few scattered hairs (Fig. 14). Frons with broad and ill-defined pollinose spots, occupying more than  $\frac{3}{4}$  of frons, with a golden sheen (Fig. 7). Spots on tergites 3 and 4 about one and a half as broad as long (Fig. 1). Third tergite distinctly less than twice as broad as long ..... *Platycheirus amplus*
- 6 Middle tibia uniformly broadened from base towards apical  $\frac{1}{3}$ , then becoming smaller and swelling strongly on apical  $\frac{1}{5}$  (Fig. 21) ..... *Platycheirus nielsenii* (pro parte)
- Middle tibia uniformly broadened from base to apex (Fig. 22), sometimes with a discrete swelling on apical  $\frac{1}{5}$  ..... 7
- 7 Middle tibia with a discrete swelling on apical  $\frac{1}{5}$ . Dusting on frons more reduced and well defined. Extremity of the abdomen pointed, due to the rela-

- tively narrow posterior margin of tergite 5 and the proportionally long and narrow sixth to eighth tergite (Fig. 12) ..... *Platycheirus nielsenii* (pro parte)
- Middle tibia uniformly broadened from base to apex, sometimes with a discrete swelling on apical  $\frac{1}{5}$ . Dusting on frons more extended and often not well defined. Extremity of the abdomen blunt, due to the relatively broad posterior margin of tergite 5 and the proportionally short and broad sixth and seventh tergite (Fig. 13) ..... *Platycheirus peltatus*

Remark: the characteristics given under 7 are subtle, not always obvious or present. When the tibia is not like that described in 6, these complementary features are needed to distinguish between these closely related species.

## DESCRIPTIONS

### *Platycheirus amplus* CURRAN, 1927: 4

Specimens examined: Belgium 2 ♀♀ 13.VII–7.VIII on 525–595 m; Finland 3 ♀♀ (7.VI–5.VIII)\*; Norway 17 ♀♀ 23.VI–13.VIII; Sweden 6 ♀♀ 26.VI–19.VII on 420–620 m; Switzerland 1 ♀ 10.VII on 1800 m.

\*(7.VI) earliest and/or latest dates from material collected with malaise traps

Frons shiny bronze-black with broad ill-defined pollinose spots, occupying more than  $\frac{3}{4}$  of frons, with a golden sheen. Face protrudes forwards and downwards, with greyish-yellow pollinosity, except on tubercle and mouth edge. Antennal segments brownish-black, third segment reddish ventrally. Hairs on frons black, occasionally with some white ones intermingled, hairs on face yellow and less dense than on frons (Fig. 7).

Mesonotum and scutellum glittering bronze-black, with greyish pollinosity in front of the transverse suture. Hairs sub erect and yellow with black ones intermingled. Pleura with dull greyish pollinosity, ventral part of katepisternum more shiny, hairs whitish. Anepisternum completely covered with long hairs. Katepisternum with long hairs confined to dorsal and ventral  $\frac{1}{5}$ , the longest ones about  $\frac{1}{4}$  as long as arista (Fig. 18). Anepimeron with long hairs on dorsal  $\frac{1}{4}$  to  $\frac{1}{2}$ , not forming a compact tuft, ventral part often with scattered hairs (Fig. 14). Halteres yellow to deep orange.

Wing membrane with small areas near base of cells c and bm bare of microtrichia. Bare areas not more than  $\frac{1}{4}$  of the length of the cells.

The legs are simple, without modifications, without distinctive hair tufts, without modified hairs or bristles, and yellow and brownish. Front and middle femur with brownish stripes, sometimes vague, and never forming a ring. Front and middle tibia with brownish stripes on apical half. Hind leg darker; femur yellow on basal  $\frac{1}{6}$  and apical  $\frac{1}{8}$  and tibia yellow on basal  $\frac{1}{8}$ .

Abdomen shiny black with yellow spots which are separated from lateral margins of the tergites. Tergite 1 black with greyish pollinosity. Tergite 2 with a pair of kidney-shaped spots which can vary greatly in shape and size. Tergite 3 and 4 with pairs of subrectangular spots about 1.5 times as broad as long, which are nearly always separated from anterior margins of the tergites. Tergite 5 with a pair of subtriangular spots of variable size. Abdomen slender, the third tergite distinctly less than twice as broad as long. Hairs on abdomen short, however, somewhat longer at lateral margins of tergites 1 and 2 (Fig. 1).

Discussion: Due to the great intraspecific variation in shape and size of the abdominal spots, *P. amplus* may be confused with *P. peltatus*. However, the spots

on tergites 3 and 4 are always subrectangular, the anterior margin of the spots is straight to slightly concave, and the length of the spots at medial margin less than twice as long as the length at lateral margin. The legs are darker than in *P. peltatus*. The abdomen is more slender than in *P. peltatus*, the breadth of the third tergite is less than half its length.

***Platycheirus holarcticus* VOCKEROTH, 1990: 698**

*Scaeva rostrata* ZETTERSTEDT, 1838: 607 (preocc. WIEDEMANN, 1830)

*Platycheirus holarcticus* VOCKEROTH, 1990: 698 (nom. n. for *Scaeva rostrata* ZETTERSTEDT, 1838)

Specimens examined: Finland 9 ♀♀ (2.VI)\* 16.VII (6.VIII) on 440 m (1)\*\*; Norway 62 ♀♀ 12.VI–17.VIII on 600 m (1); Sweden 31 ♀♀ (6.VI) 2.VII–26.VII (2.VIII) on 395–720 m (11).

\* earliest and/or latest dates from material collected with malaise traps

\*\* number of observations, if less than total number

Similar to *P. amplus*. Frons more shiny with triangular greyish pollinose spots, occupying about  $\frac{1}{3}$  of frons. Face protrudes slightly more downwards and is more shiny. Hairs on frons black.

Mesonotum and scutellum with mixed black and whitish erect hairs. Katepisternum as in *P. amplus*. Anepimeron with the long hairs on dorsal  $\frac{1}{2}$  forming a compact tuft with a silvery shine, hair bases not visible, ventral part bare (Fig. 15).

Wing membrane more trichose, at least  $\frac{4}{5}$  of cells c and bm covered with microtrichia.

Spots on tergite 2 kidney-shaped (as in Fig. 1) to semi-circular. Tergites 3 and 4 with a pair of rectangular spots, which reach anterior margins of the tergites, about twice as broad as long (Fig. 2). Tergite 3 about twice as broad as long.

Discussion: *P. holarcticus* is easily distinguishable by the long hairs on the anepimeron forming a compact tuft with a silvery shine.

***Platycheirus islandicus* RINGDAHL, 1930: 173**

*Platycheirus peltatus* var. *islandicus* RINGDAHL

*Platycheirus islandicus* RINGDAHL, stat.n.

*Platycheirus islandicus* (FRISTRUP, 1943): 157. **Syn.nov.**

Type series: 10 ♂♂ and 4 ♀♀ labelled with a white squared paper with the number 96, and 5 ♂♂ with the same kind of paper but with the number 97. These numbers stand for the places where the specimens have been taken; Nr 96 Húsadalur *Betula* sp. forest Iceland 13–6–1929, nr 97 Hamraskógar *Betula* sp. frontst Iceland 14–6–1929, all leg C.H. LINDROTH and col Naturhistoriska Museum (Göteborg). One male, designated Lectotype, and all other specimens designated Paralectotypes, are provided with red labels (art.74 F of the code).

Additional specimens examined: 2 ♀♀ from Iceland leg P. OOSTERVELD (coll. J. A. W. LUCAS, Rotterdam).

Male diagnosis: Face protrudes forwards and downwards, with silvery-grey pollinosity and shiny tubercle and mouth edge. Antennae dark brown, third segment paler ventrally. Frons and ocelli shiny black. Hairs on mouth edge short, silvery-greyish, on face black, occasionally with some white intermingled. Frons and ocelli with long black hairs. The length of the line of junction of the eyes is much shorter than one lateral side of vertex.

Mesonotum and scutellum shiny bronze-black, with grey pollinosity in front of transverse suture. Hairs erect, dense and all black, except in front of transverse suture where they are greyish. Hair length gradually increases from anterior part of mesonotum to scutellum. Pleura subshiny, hair colour varies from nearly all black to nearly all white. The hairs on anepisternum which reach backwards over

anepimeron always black, with crinkly apices. Hairs on posterior rim of anepisternum decrease in length from dorsal to ventral. Dorsal half of anepimeron with hairs all black, abundant and with crinkly apices, but not forming a dense tuft, ventral half without hairs. Hairs on ventral part of katepisternum white and fine, the longest  $\frac{2}{5}$  as long as arista. Knob of halter light brown.

Wing membrane completely covered in microtrichia, sometimes with very small bare areas near base of cells c and bm, slightly darkened over whole surface.

Legs black to reddish-brown and yellow in colour. Front leg: femur black, yellow on apical  $\frac{1}{5}$ ; tibia yellow with dark stripe on posterior apical half; first and second tarsomere whitish, the rest yellow. Middle leg: femur black, apical  $\frac{1}{3}$  more reddish; tibia reddish-brown and tarsus yellow. Hind leg black except on apical  $\frac{1}{9}$  of femur and knee. Front trochanter with ventral black setae about  $\frac{3}{4}$  as long as basal diameter of femur; entire length of posterior surface of front femur with many long slightly flattened black hairs. Front tibia gradually broadened from base, abruptly broadened preapically and narrowed at apex, with long hairs on posterior apical half, first tarsomere about twice as long as broad, about the same breadth as front tibia, with a distinct dorsal keel on apical half; second tarsomere about as long as broad, slightly more than  $\frac{1}{2}$  as broad as first, without dorsal keel, last 3 tarsomeres simple (Fig. 25). Middle femur with shallow bare excavation on about  $\frac{3}{4}$  of anterior surface, the excavation preceded by a few black anteroventral setae, bordered below by very short stout curved black setae and followed by a cluster of fine crinkly upward directed black hairs almost as long as femoral diameter. Middle tibia with moderate swelling at apex, anteroventral hair tuft on basal half yellow to black, about 1.5 as long as diameter of tibia. Anterior surface of hind tibia with short stout setae on basal  $\frac{1}{3}$ , with similar but slightly longer setae on apical  $\frac{2}{3}$ . First tarsomere of hind leg swollen on basal half, tapering gradually to slender apex (Fig. 23).

Abdomen robust black with dull brownish-yellow spots, often strongly reduced and ill defined, clearly separated from lateral and anterior margins of the tergites. Spots on tergite 2 kidney-shaped to semi-triangular, lying in the middle of the tergite, tergites 3 and 4 each with a pair of subquadrate spots. Hairs predominantly white, on posterior margins occasionally with some black hairs.

Female diagnosis: Similar to male except for the normal sexual dimorphism. Most closely related to *P. peltatus* and *P. nielsenii* from which it can be separated by the following characteristics; base of all femora black; hairs on mesonotum and scutellum black, except in front of transverse suture where they are silvery; spots on tergites 2–5 strongly reduced, ill defined, brownish; exterior fringe of femur 1 with long black hairs. The species is in general much darker than all the other species of the *peltatus* group.

Distribution: The species seems to be endemic for Iceland.

Discussion: RINGDAHL (1930) uses the name *islandicus* to describe a variety of *Platycheirus peltatus*. According to Art. 45g II of the International Code of Zoological Nomenclature this name is an available species-group name and is therefore used for this distinct species.

FRISTRUP (1943) describes another new species as *Platycheirus islandicus* which differs from *P. peltatus* var. *islandicus* RINGDAHL in colour and (abdominal) markings. Judging from FRISTRUP's description and the variety studied in the material above we believe that his species is the same as the one described by RINGDAHL, even though we did not study the types of *P. islandicus* (FRISTRUP). In describing *P. islandicus*, FRISTRUP has, ipso facto, created a primary homonym and a synonym.



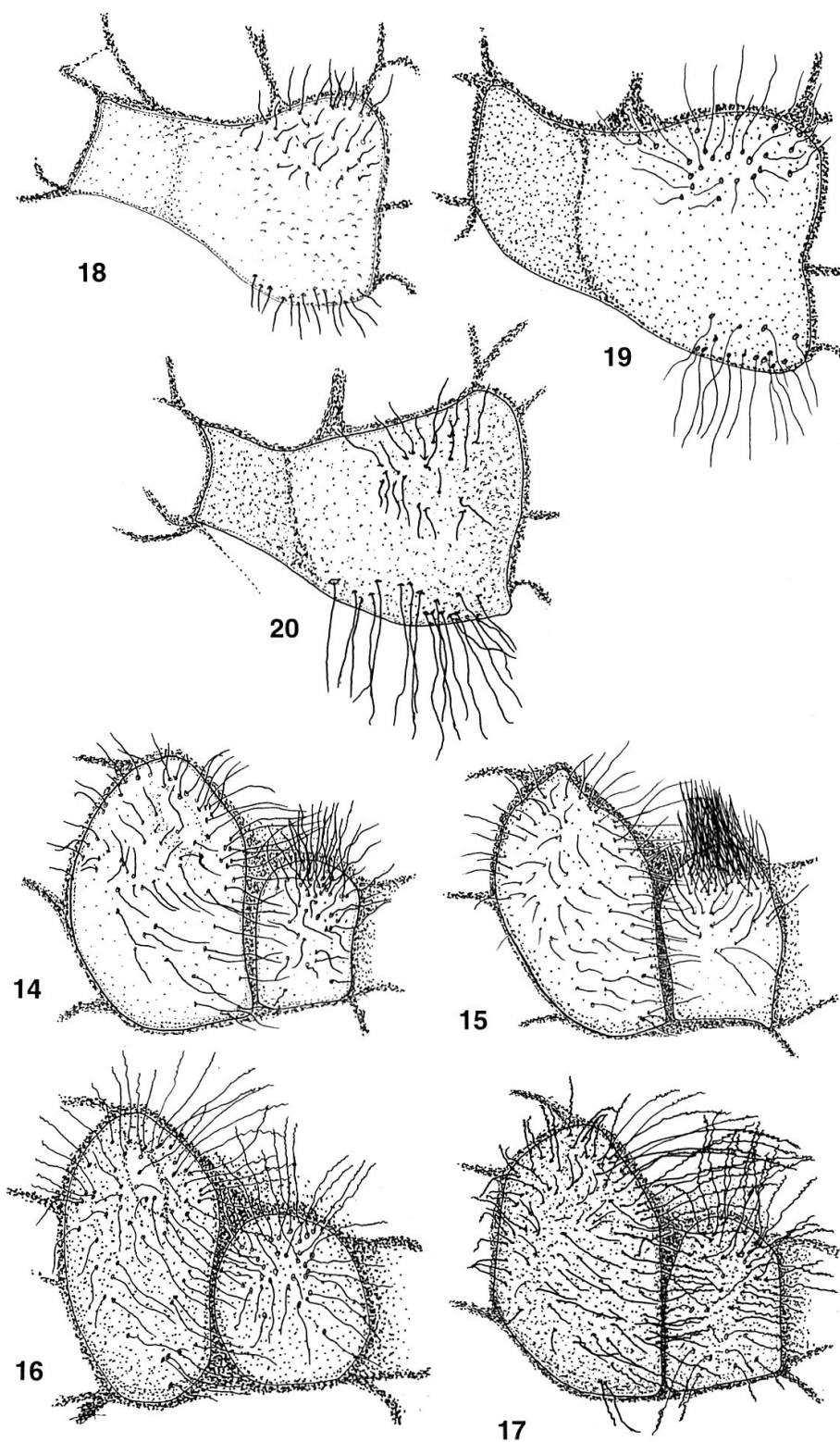



fig. 18–20 : 1 mm = 

fig. 14–17 : 1 mm = 

Figs 14–20. 14–17: Anepisternum and anepimeron. 14) *Platycheirus amplus* (Sweden); 15) *Platycheirus holarcticus* (Sweden); 16) *Platycheirus jaerensis* (Sweden); 17) *Platycheirus parmatus* (France). – 18–20: Katepisternum 18) *Platycheirus amplus* (Sweden); 19) *Platycheirus jaerensis* (Sweden); 20) *Platycheirus parmatus* (France).

The male of *P. islandicus* (Figs 23, 25) is closely related to the male of *P. peltatus* (Figs 24, 26). The main differences are as follows: The length of the line of junction of the eyes is much shorter than one lateral side of vertex (shorter than in *P. peltatus*); hairs on mesonotum and scutellum all black (yellow hair present in *P. peltatus*), except in front of transverse suture where they are greyish, and gradually increase in length from anterior part of mesonotum to scutellum (hairs of equal length in *P. peltatus*); hairs on posterior rim of anepisternum decrease in length from dorsal to ventral (hairs of equal length in *P. peltatus*); the hairs on anepisternum which reach backwards over anepimeron always black (yellow in *P. peltatus*); dorsal half of anepimeron with hairs all black (yellow in *P. peltatus*); spots on tergite 2 kidney-shaped to semi-triangular, lying in the middle of the tergite; spots on tergites 3 and 4 subquadrate, clearly separated from anterior margins of the tergites; front tibia with a somewhat stronger swelling (Fig. 25), (Fig. 26 in *P. peltatus*); first tarsomere of hind leg swollen on basal half, tapering gradually to slender apex (Fig. 23), (Fig. 24 in *P. peltatus*).

***Platycheirus jaerensis* NIELSEN, 1971: 57**

Specimens examined: Finland 2 ♀♀ (7.VI–5.VIII); Norway 10 ♀♀ 31.V–13.VI; Sweden 5 ♀♀ 6.VI–3.VII

Has a certain resemblance with *P. amplus*. Frons broad and more shiny, pollinose spots less clearly defined. Face less produced below, facial tubercle less prominent. First and second antennal segment orange, third segment somewhat darker dorsally (Fig. 8).

Mesonotum and scutellum with bluish lustre; hairs yellow, sometimes with black hairs above base of wings. Pleurae shiny bluish-black, faintly whitish pollinose. Anepisternum and anepimeron with hairs longer and more crinkly on top. Hairs on anepimeron less dense, bare on ventral  $\frac{1}{4}$ – $\frac{1}{3}$  (Fig. 16). Longest katepisternal hairs twice as long as in *P. amplus*,  $\frac{1}{2}$  as long as arista (Fig. 19).

Wings much less trichose, about  $\frac{1}{2}$  of cells c and bm bare.

Front and middle legs nearly completely yellow, sometimes a brownish shadow on femur and tibia (Fig. 10). Hind femur yellow on basal  $\frac{1}{3}$  and apical  $\frac{1}{6}$  and tibia yellow on basal and apical  $\frac{1}{8}$ , sometimes also in the middle.

Abdominal spots larger. Tergite 2 with a pair of quadrate to semi-circular spots, close to the anterior margin of the tergite. Tergites 3 and 4 with a pair of squarish spots reaching the anterior margins of the tergites (Fig. 3).

Discussion: Sometimes the hairs on the katepisternum are difficult to see. The species is nonetheless easily distinguishable by the characteristics mentioned in the key.

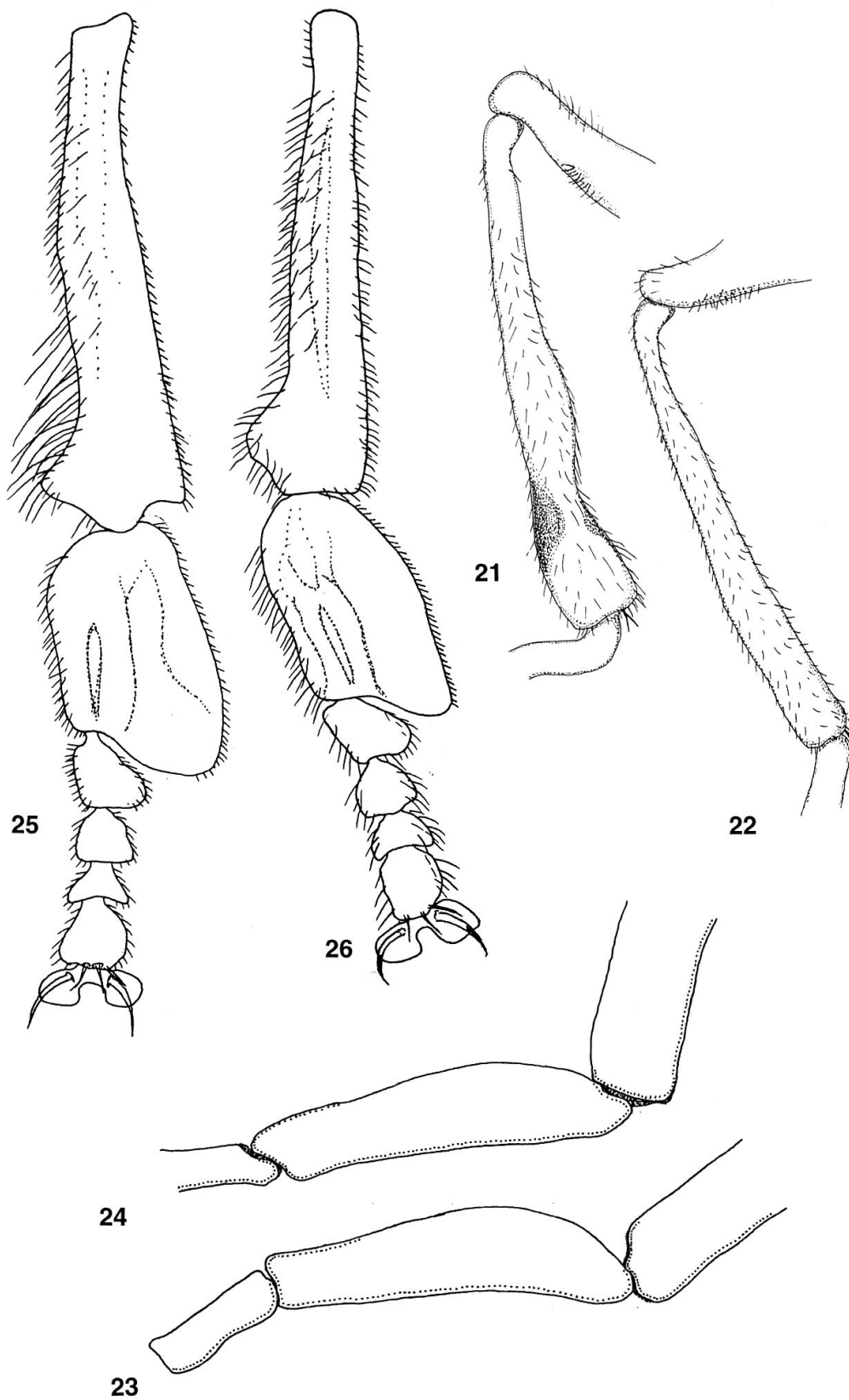
***Platycheirus nielsenii* VOCKEROTH, 1990: 712**

Specimens examined: Austria 4 ♀♀ 15.VII on 1750 m; Italy 1 ♀ 9.VIII 925 m; Norway 10 ♀♀ 25.VI–3.VIII on 600 m (1); Sweden 15 ♀♀ 29.VI–20.VII (1.IX) on 0–620 m; Switzerland 48 ♀♀ 1.VI–7.VIII on 1400–1700 m (5).

Similar to *P. peltatus*. Frons more shiny, pollinose spots triangular shaped with less rounded medial corners, occupying about  $\frac{1}{3}$  of frons. Sometimes also some pollinosity between pollinose spots and lunulae. Facial tubercle somewhat more prominent.

Anepisternum, anepimeron, and katepisternum as *P. amplus*.

Wing membrane a little more trichose, about  $\frac{2}{5}$  of cells c and bm bare.



Figs 21–26. 21–22: Middle tibia. 21) *Platycheirus nielseni* (Sweden); 22) *Platycheirus peltatus* (The Netherlands). – 23–24: First tarsomere of male hind leg. 23) *Platycheirus islandicus* (Lectotype, Iceland); 24) *Platycheirus peltatus* (Sweden). – 25–26: Male front tibia and tarsus. 25) *Platycheirus islandicus* (Lectotype, Iceland); 26) *Platycheirus peltatus* (Sweden).

Middle tibia uniformly broadened from base towards apical  $\frac{1}{3}$  then becoming smaller and swelling strongly on apical  $\frac{1}{5}$  (Fig. 21). In small specimens this feature is not always obvious.

Abdominal spots more reddish-coloured, the posterior margins of the spots on tergites 3 and 4 less concave, but shape and size are variable (Fig. 4). Extremity of the abdomen pointed, due to the relatively short posterior margin of tergite 5 and the proportionally long lateral side of the sixth to eighth tergite (Fig. 12). Abdomen broad, third tergite at least twice as broad as long.

Discussion: The species is distinguishable by the combination of features, the modified middle tibia and the pointed extremity of the abdomen. The shape and size of the abdominal spots show less intraspecific variation and the pollinosity on the frons is little less extended than in *P. peltatus*.

***Platycheirus parmatius* RONDANI, 1857: 121**

*Platycheirus ovalis* BECKER, 1921: 27

Specimens examined: Belgium 3 ♀♀ 26.V–1.VII; France 3 ♀♀ 6.VI–11.VI on 500–1250 m; Netherlands 2 ♀♀ 12.V–26.V; Norway 6 ♀♀ 19.VI–22.VII; Slovakia 1 ♀♀ 28.V; Sweden 2 ♀♀ 6.VII–8.VII on 485–620m; Switzerland 50 ♀♀ 16.IV–1.VIII on 1400–1600 m (2).

Similar to *P. jaerensis*. Frons with well-defined, small, triangular pollinose spots. Face with more prominent tubercle. Antennae black, third segment reddish ventrally (Fig. 9).

Hairs on mesonotum and scutellum somewhat longer, black and white mixed. Hairs on anepisternum longer, reach backwards as far as the end of anepimeron, more crinkly on top. Anepimeron completely covered with long, on top crinkly hairs (Fig. 17). Longest katapisternal hairs about  $\frac{4}{5}$  as long as arista (Fig. 20).

Wings more trichose, less than  $\frac{1}{2}$  of cells c and bm bare.

Legs yellow and black, much darker; front and middle femur yellow on basal  $\frac{1}{8}$  and apical  $\frac{1}{3}$ , front and middle tibia with black ring on apical half (Fig. 11). Hind femur yellow on basal and apical  $\frac{1}{9}$ ; tibia 3 only innermost base yellow.

Tergite 2 with a pair of semi-circular spots, lying in the middle of the tergite. Tergites 3 and 4 with pairs of rectangular spots well separated from anterior margins of the tergites (Fig. 5).

Discussion: The species is the only one in this group whose abdominal spots are well separated from the anterior margins of the tergites. Together with the other characteristics mentioned in the key, this species is easily distinguishable.

***Platycheirus peltatus* (MEIGEN, 1822): 334**

Specimens examined: Austria 3 ♀♀ 3.VII–20.VII on 1200–1350 m; Belgium 4 ♀♀ 10.VII–5.VIII on 250–350 m (1); Danmark 1 ♀ 24.VI; Finland 7 ♀♀ 17.VII; France 2 ♀♀ 25.VI–20.VII on 200–300 m; Germany 2 ♀♀ 26.VIII–31.VIII; Great-Britain 1 ♀ 26.VII; Netherlands 7 ♀♀ 24.V–30.VIII; Norway 43 ♀♀ 28.V–31.VIII on 800 m (1); Sweden 39 ♀♀ 6.VI–17.VIII on 420 m (1); Switzerland 115 ♀♀ 30.VI–29.IX.

Similar to *P. amplus* and *P. nielseni*. Frons with smaller pollinose spots than *P. amplus*, but they can differ greatly in size and shape. Medial corner of triangular spots more or less rounded nearly always visible and more obvious than other pollinosity. Pollinosity seldom with golden sheen. Face protrudes less downwards, mouth edge straighter.

Anepisternum, anepimeron, and katapisternum as in *P. amplus*.

Wing membrane less trichose, but bare areas of cells c and bm can range between  $\frac{1}{5}$  and  $\frac{3}{5}$ .

Legs more yellow than in *P. amplus*. Front and middle femur sometimes with brownish stripes. Hind femur yellow on basal  $\frac{1}{4}$  and apical  $\frac{1}{6}$ , tibia yellow on basal  $\frac{1}{6}$ . Middle tibia uniformly broadened from base to apex, sometimes with a discrete swelling on apical  $\frac{1}{5}$  (Fig. 22).

Abdominal spots yellow-coloured, on tergite 2 semi-triangular, lying close to the anterior margin of the tergite, but size and shape can vary greatly. Tergites 3 and 4 with a pair of trapezoid spots, which also can vary greatly in size and shape. Length of spots on medial margins of the spots at least twice as long as length at lateral margins of the spots. Posterior margins of spots concave (Fig. 6). Extremity of the abdomen blunt, due to the relatively long posterior margin of tergite 5 and the proportionally short lateral margin of tergites 6 and 7 (Fig. 13). Third tergite about as broad as long.

Discussion: The species shows a great intraspecific variation in the extension of pollinosity on frons, wing-microtrichia covering, and shape and size of abdominal spots. See *P. amplus* and *P. nielsenii* for further discussion.

For the distinction between the males of *P. peltatus* and *P. islandicus* see the discussion on *P. islandicus*.

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