New species and new distributional records of the genus *Paragus* Latreille (Diptera, Syrphidae) from China

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A list of 20 hoverfly species of the genus *Paragus* Latreille from China is given, together with data on their distribution. Three species of the subgenus *Paragus* Latreille (*P. sinicus* **spec. nov.**, *P. erectus* **spec. nov.**, *P. balachonovae* **spec. nov.)** and one species of the subgenus *Pandasyopthalmus* Stuckenberg (*P. expressus* **spec. nov.)** are described as new. Drawings of head, antenna, abdomen, male terminalia and end of female abdomen are presented. A key is provided to identify all *Paragus* species recorded in China.

Key words: *Paragus*, new species, new distribution data, key, China, Syrphidae

Zusammenfassung

Eine Checkliste der 20 in China nachgewiesenen *Paragus*-Arten und ihre Verbreitung in China wird vorgelegt. Drei neue Arten aus der Untergattung *Paragus* Latreille (*P. sinicus* **spec. nov.**, *P. erectus* **spec. nov.**, *P. balachonovae* **spec. nov.)** und eine Art aus der Untergattung *Pandasyopthalmus* Stuckenberg (*P. expressus* **spec. nov.**) werden beschrieben und abgebildet. Ein Schlüssel zur Bestimmung aller bisher aus China bekannten *Paragus*-Arten wird vorgelegt.

Introduction

Several new species of *Paragus* have been recently described from the Palaearctic and Oriental regions. There are now 50 species of the genus *Paragus* recorded from the Palaearctic region (Goeldlin de Tiefenau 1976, Marcos-García 1986, Peck 1988, Marcos-García & Rojo 1994, Hayat & Claussen 1997, Mutin & Barkalov 1999, Bańkowska 2000, Weyer 2000, Barkalov & Goguzokov 2001, Sorokina 2002, Claussen & Weipert 2003). 24 species of *Paragus* are recorded from the Oriental region (Thompson & Ghorpadé 1992).

There are published records of only 11 species of the genus *Paragus* Latr. from China: *P.* (*Paragus*) *compeditus* Wiedemann, *P. crenulatus* Thomson, *P. quadrifasciatus* Meigen, *P. stackelbergi* Bańkowska, *P. xinyuanensis* Li & He, *P. serratiparamerus* Li, *P. tribuliparamerus* Li, *P. gulangensis* Li & Li, *P.* (*Pandasyopthalmus*) *politus* Wiedemann, *P. tibialis* (Fallén), *P. rufocinctus* (Brunetti) (Peck 1988, Li 1990, Li & Li

1990, Thompson & Ghorpadé 1992, Li & He 1993). It was doubtful whether *Paragus rufocinctus* occurs in China. *P. serratiparamerus* is a junior synonym of *P. oltenicus* Stănescu (Stănescu 1999).

Among Chinese material in the collections of the Institute of Zoology of the Chinese Academy of Sciences (Beijing) and the Zoological Museum of the Institute of Animal Systematics and Ecology RAS (Novosibirsk) we found twenty species of *Paragus*. Four species among them proved to be new to science and one of them, *Paragus rufocinctus,* is new for the territory of Southern China. We can also record two of the new species (*P. balachonovae, P. expressus*) from Russia (Southeast Siberia) and Northeast Kazakhstan.

Description of new species

Paragus (*Paragus*) *sinicus* **spec. nov.**

Holotype: ♂, China, Beijing, 30.05.1949. – Paratypes: 3♂ 1♀, China, Beijing, 18-25.04.1949; 1♂, Beijing, 14.04.1951; 1♀, Beijing, 21.06.1958; 1♂ 1♀, Beijing, 21.06.1957; 1♂, Beijing, 22.05.1957; 1♂ 1♀, Beijing, 1.07.1973; 1♀, Beijing Xiangshan, 39º54'N 116º12'E, 500m, 26.09.1961, leg. Wang Shuyong; 1♂, Beijing Xizhimengwai, 39º54'N 116º24'E, 8.05.1952, leg. Zhang Yiran; 1♂, Shandong Laoshan, 36º12'N 120º36'E, 23.09.1975, leg. Han Yanheng; 1♀, Nei Mongol Liangcheng, 40º30'N 112º20'E, 15.07.1980; 1♂, Henan Anyang, 36ºN 114º18'E, 10.07.1955.

Deposition of types: Holotype in the Institute of Zoology of the Chinese Academy of Sciences (Beijing). Paratypes: 3♂, 2♀ in the Zoological Museum of the Institute of Animal Systematics and Ecology RAS (Novosibirsk); 7♂, 4♀ in the Institute of Zoology of the Chinese Academy of Sciences (Beijing).

Etymology: The epithet is derived from China where all specimens of the type series were collected.

Diagnosis: The colour of the body is similar to that of *P. compeditus* Wiedemann.

The male can be distinguished as follows:

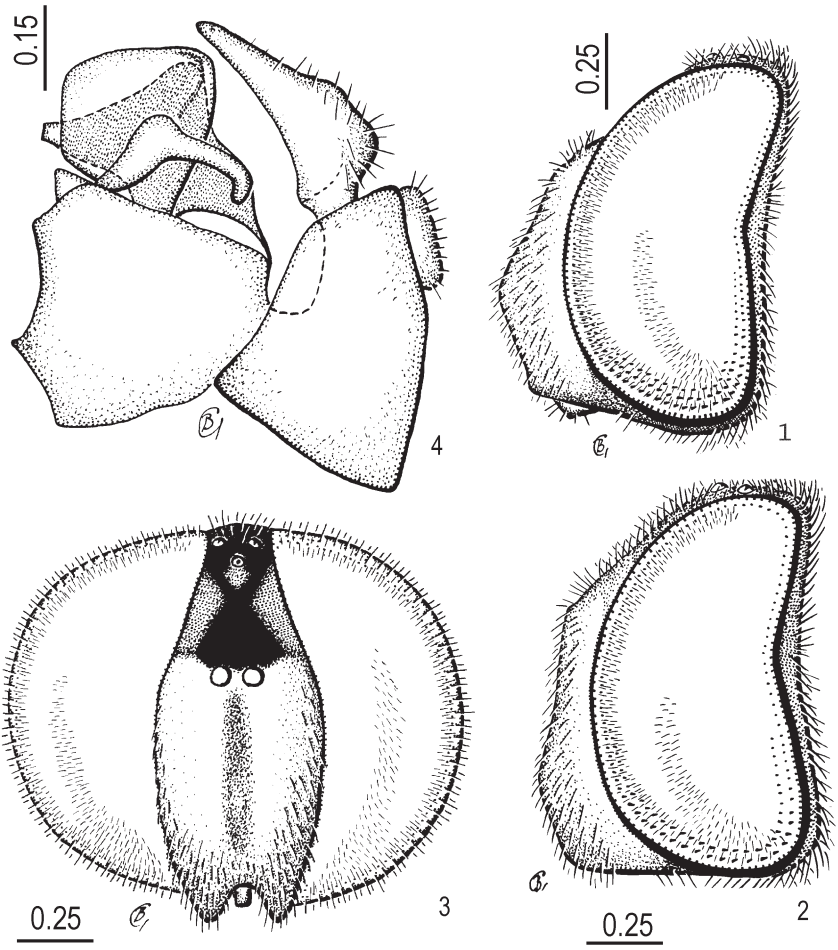
1 Posterior margin of sternite IV with sharp, median process (fig. 6); mesonotal hairs long; genitalia as in fig. 4 ……..……..…….. *P. sinicus*

– posterior margin of sternite IV almost straight, without sharp median process; mesonotal hairs shorter; genitalia as in fig. 62 ….....…… *P. compeditus*

The female can be distinguished as follows:

1 Face with narrow brownish medial vitta; tergite VII shorter, its exposed part about three times as wide as long in dorsal view (fig. 8) ……..……. *P. sinicus*

– face completely yellow; tergite VII very large in dorsal view, about two times as wide as long (fig. 60) …..……...…..…… *P. compeditus*

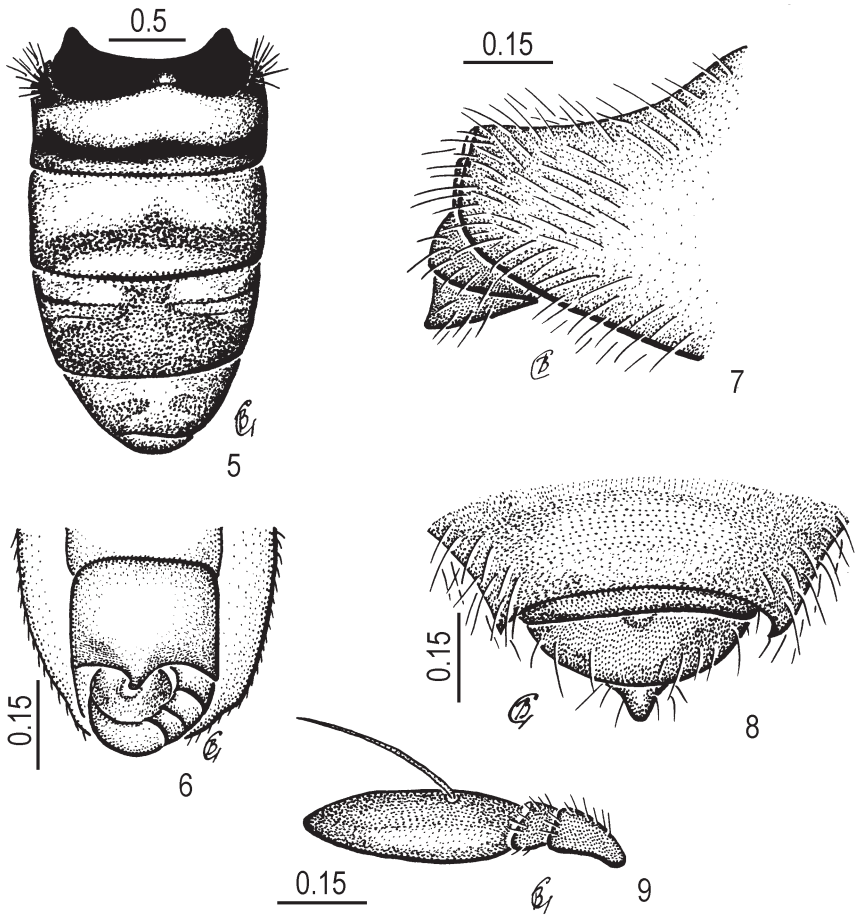


Figs 1-4: ***Paragus sinicus*** **spec. nov.** – 1. ♂ head, lateral; – 2. ♀ head, lateral; – 3. ♀ head, frontal; – 4. ♂ genitalia, lateral. – Scales in mm.

Description (figs 1-9):

♂: Head: face moderately protruding, entirely yellow except for narrowly black oral margin near eye, covered with whitish hairs (fig. 1). Length of frons equal to line of eye suture. Vertex shining, black, with dense pollinosity anteriorly, covered with mixed black and yellow hairs. – Antenna light-brown, 3rd segment yellowish ventrally and 3 times as long as wide (fig. 9); arista light-brown.

Thorax: mesonotum shining, black, with moderately fine, dense puncturation, covered with long, erect whitish hairs, with two short, pale, pollinose submedial vittae.



Figs 5-9: ***Paragus sinicus*** **spec. nov.** – 5. ♂ abdomen, dorsal; – 6. abdomen, ventral; – 7. ♀ end of abdomen, lateral; – 8. ♀ end of abdomen, dorsal; – 9. ♂ antenna, lateral. – Scales in mm.

Scutellum black with largely yellow apex, without teeth on its hind margin. – Legs: fore and mid legs entirely yellow; hind femur with dark annulus in apical half; hind tibia with dark ventral spot in apical half; legs covered with pale-yellowish hairs.

Abdomen: tergite I black with small, yellow, median spot close to posterior margin, tergite II brownish-black, with wavy yellow band which narrowly extends to the lateral margin, tergites III-V light-brown, with yellow band on tergite III and yellow spots on tergites IV-V, all yellow markings extending broadly to the lateral margins (fig 5); tergites IV-V with narrow, silver, transverse vittae. All tergites with adpressed yellow and black hairs. Sternite IV with distinct, sharp, median process on the posterior margin (fig. 6). – Genitalia: hypandrium spherical, without lingula (fig. 4); surstylus rough, convex posteriorly; lateral lobe of aedeagus trapezoidal with small, spherical,

external process posteriorly; superior lobe of hypandrium long, dorsally bent at a right angle (fig. 4).

Size: body length (without antenna) 6.3 mm; wing 4.2 mm.

♀: Head: Face weakly protruding, with approximately parellel sides (fig. 2), yellow, with narrow brownish medial vitta which reaches the base of the antennae and is about 1/5 as wide as face; face covered with whitish hairs (fig. 3); oral margin narrowly dark near eye. Frons shining, black, with a long, triangular, grey pollinose spot along eye margin and small, pollinose spot in front of ocellar triangle; covered with yellow hairs (fig. 3); ocellar triangle with black pile; distance between posterior ocelli three times the distance between a posterior ocellus and eye margin.

Thorax: as in the male.

Abdomen: colour of tergites as in the male but black colour more distinct; sternite IV with dark median spot or entirely dark; tergite VII broad, flat, without ledge and cleft (figs. 7, 8).

Size: body length (without antenna) 6.3-6.5 mm; wing 4.5 mm.

Distribution (map 1): China.

Paragus (*Paragus*) *erectus* **spec. nov.**

Holotype: ♂, China, Xinjiang: on the road between Toto and Wutai, 44º36'N 82º06'E, 2.07.1957, leg. Yang Weiyi.

Deposition of type: the Institute of Zoology of the Chinese Academy of Sciences (Beijing).

Etymology: the epithet is derived from the erect hairs on the mesonotum.

Diagnosis: in the colour of the body and the form of sternite IV the new species is similar to *P. gulangensis* Li & Li.

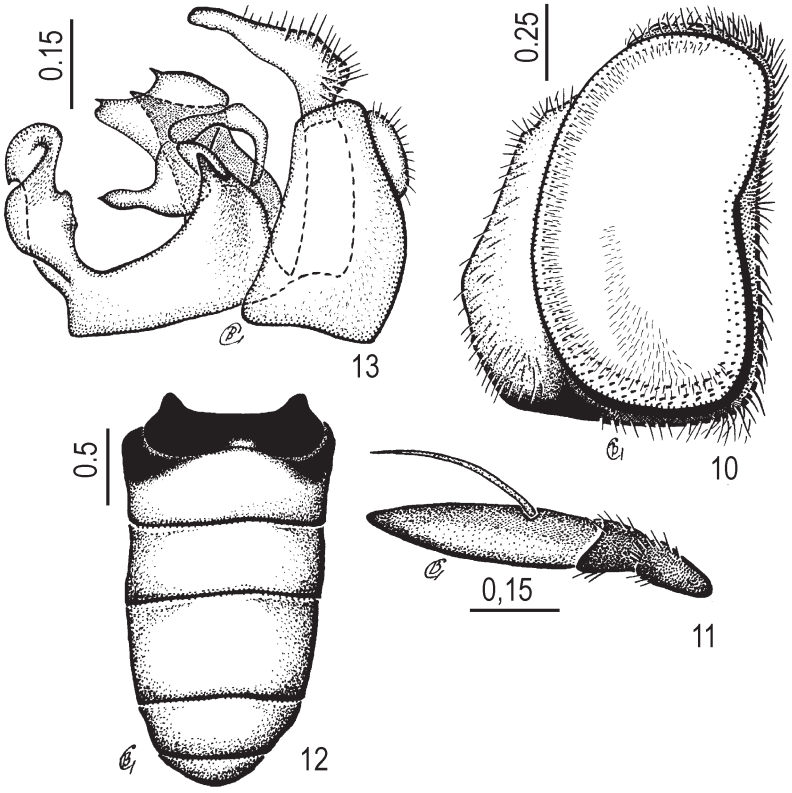
The males of these species can be distinguished as follows:

1 Mesonotum with erect hairs; 3rd antennal segment long (fig. 11); face moderately protruding (fig. 10); abdomen almost entirely reddish-yellow (fig. 12); genitalia as in fig. 13 ……..…… *P. erectus*

– mesonotum with adpressed hairs; 3rd antennal segment shorter; face strongly protruding; abdomen usually with black markings; genitalia as in fig. 48 ……..…… *P. gulangensis*

Description (figs 10-13):

♂: Head: face moderately protruding, entirely yellow except for narrowly black oral margin near eye, covered with whitish hairs (fig. 10). Frons and eye suture of equal length. Vertex shining-black, with dense pollinosity anteriorly and all hairs yellow. Antenna: 1st and 2nd segments dark-brown, 3rd segment light-brown, 4 times as long as wide and with pointed apex (fig. 11); arista light-brown.



Figs 10-13: ***Paragus erectus*** **spec. nov., ♂.** – 10. head, lateral; – 11. antenna, lateral; – 12. abdomen, dorsal; – 13. genitalia, lateral. – Scales in mm.

Thorax: mesonotum black, weakly shining, with moderately fine, dense punctuation, without pale pollinose submedial vittae and covered with long, erect, golden hairs. Scutellum black with largely yellow apex, without teeth on hind margin. – Legs: mainly yellowish, covered with yellow hairs; femora black on basal 1/2-2/3, hind basitarsus blackish dorsally.

Abdomen: reddish-yellow except for black tergite I and black anterior angles of tergite II (fig. 12); covered with adpressed, mixed yellow and black hairs. Sternite IV with posterior margin straight, without process. – Genitalia: lingula with broad, bent lateral lobe (fig. 13); surstylus dorsally and ventrally rough, wavy; superior lobe of hypandrium long, thin, dorsally bent, dilating at the middle; lateral lobe of aedeagus elongated anteriorly and with two teeth (fig. 13).

Size: body 6.0 mm; wing 5.0 mm.

♀: unknown.

Distribution (map 1): China.

Paragus (*Paragus*) *balachonovae* **spec. nov.**

Holotype: ♂, Respublika Altai, Ongudaj, 50º45'N, 86º08'E, 3.07.1957, leg. A.N. Tsherepanov. – Paratypes: 1♂, China, Xinjiang Qinghe, 46º42'N 90º18'E, 13.08.1956, leg. Yang Weiyi; 1♂, Russia, Respublika Altai, ploskogor'e Ukok, environs of Muzdy-Bulak lake, 49º28'N 87º65'E, 2400m, 27.06.2005, leg. V. Sorokina, 1♂, 2300-2500m, 28.06.2005, leg. V. Zinchenko, 3♂ 1♀, 2420m, 30.06.2005, leg. A. Barkalov, 2♂ 1♀, 2800-3000m, 2.07.2005, leg. A. Barkalov.

Deposition of types: Holotype in the Zoological Museum of the Institute of Animal Systematics and Ecology RAS (Novosibirsk). Paratypes: 7♂, 2♀ in the Zoological Museum of the Institute of Animal Systematics and Ecology RAS (Novosibirsk); 1♂ in the Institute of Zoology of the Chinese Academy of Sciences (Beijing).

Etymology: the species is dedicated to my (V. Sorokina) teacher and entomologist Vera A. Balachonova (Kurgan).

Diagnosis: In the colour of the body and the form of sternite IV this species is similar to *P. lelej* Mutin.

The male and the female can be distinguished as follows:

1 Mesonotum with erect hairs; 3rd antennal segment short (fig. 15); hind femora black on basal 1/2; genitalia as in fig. 18; posterior margin of tergite VII of female with a thickening ..... *P. balachonovae*

– mesonotum with adpressed hairs; 3rd antennal segment longer; hind femora black on basal 1/3; genitalia as in fig. 43; posterior margin of tergite VII of female without a thickening ..... *P. leleji*

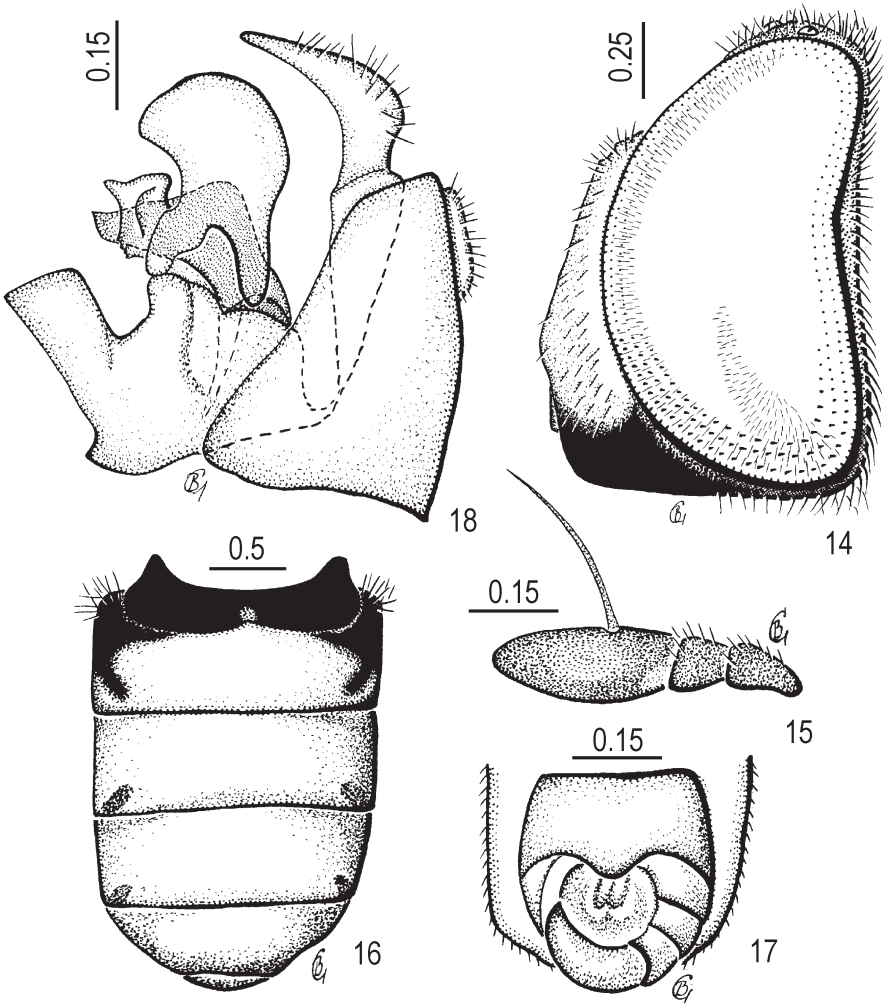
Description (figs 14-18):

♂: Head: face weakly protruding, entirely yellow except for broadly black oral margin near eye and covered with whitish hairs (fig. 14). Length of frons equal to length of eye suture. Vertex black, matt, entirely yellow haired. – Antenna: 1st and 2nd segments black, 3rd segment brown, ca. 2 times as long as wide (fig. 15); arista brown.

Thorax: mesonotum black, weakly shining, with moderately fine, dense punctuation, without pale, pollinose, submedial vittae and covered with short, erect, golden hairs. Scutellum black with largely yellow apex, without teeth on outer margin. – Legs: mainly yellowish with yellow pile; fore and mid femora black on basal 1/3, hind femur black on basal 1/2, hind tarsus blackish dorsally.

Abdomen: reddish, except for black tergite I and black anterior angle of tergite II (fig. 16), covered with short, adpressed, mixed yellow and black hairs. Posterior margin of sternite IV undulating posteriorly (fig. 17). – Genitalia (fig. 18): surstylus relatively narrow, flat dorsally and ventrally, continuously narrowed to apex; superior lobe of hypandrium very large, dilating in upper half and sharply narrowed in lower part; lateral lobe of aedeagus small, denticulate antero-ventrally, with one tooth apically and with a lateral process.

Size: body 6.6 mm; wing 4.3 mm.



Figs 14-18: ***Paragus balachonovae*** **spec. nov.,** ♂**.** – 14. head, lateral; – 15. antenna, lateral; – 16. abdomen, dorsal; – 17. abdomen, ventral; – 18. genitalia, lateral. – Scales in mm.

♀: similar to the male, but with broadly black markings on abdomen.
Size: body 7.0-7.3 mm; wing 5.3-5.5 mm.

Distribution (map 1): Russia: Respublika Altai; China.

Paragus (*Pandasyopthalmus*) *expressus* **spec. nov.**

Holotype: ♂, China, Beijing, 11.09.1961, leg. Zhang Xuezhong. – Paratypes: China: 1♂, Beijing, 14.06.1951; 1♂, Beijing wofusi, 11.09.1961, leg. Zhang Xuezhong; 1♂, Xinjiang, 111°18'N 35°42'E, 7.08.1957, leg. Yang Weiyi; 1♂, Xinjiang, 460m, 14.09.1959, leg. Wang Shuyong; 1♂, Tianshan, 7.08.1957, leg. Wang Lian; 2♂, Nei Mongol, Liangcheng, 40°30'N 112°30'E, 15.07.1980; 1♂, Nei Mongol, Xilin Gol Meng, 43°54'N 116°E, 18.06.1971; 1♂, Manhanshan, 15.08.1980; 1♂, Xin'an Meng, 46°N 121°E, 26.07.1983, leg. Qi Pengfei; 1♂, Gansu Lanzhou, 36°N 103°42'E, 27.04.1955, leg. Ma Shijun; 1♂, Henan Luoyang, 34°36'N 112°24'E, 20.05.1936; Russia: 1♂, Respublika Tyva, valley of Orukku-Šynaa river, 50°42'N 93°42'E, 25.08.1960, leg. N. Violovitsh; 1♂, Respublika Tyva, NE bank of Uvs Huur lake, 1700m, 50°65'N 93°03'E, 18.07.93, leg. A. Barkalov; 2♀, Respublika Tyva, valley of Irbitej river, 45 km W Oo-Šynaa, 93°06'N 50°42'E, 18,19.07.1993, leg. A. Barkalov; 1♂, Respublika Tyva, valley of Irbitej river, 50°48'N 93°15'E, 9.08.1963, leg. M. Evstigneeva; 1♂ 1♀, Respublika Tyva, middle stream of Ak-Sug river, 1059m, 51°40'N 90°45'E, 26.06.2004, leg. A. Barkalov; 2♂ 1♀, Chita, Sokhondinskij reservation, cordon Bukukun, 49°15'N 111°20'E, 9,10.08.1991, leg. A. Barkalov; 1♀, Chita, Sokhondinskij reservation, W cordon Ernistyi, 49°20'N 111°15'E, 12.08.1991, leg. A. Barkalov; Kazakhstan: 5♂ 1♀, 40 km S SE Kyzylkesek, northern spur of the hrebet Tarbogataj, 47°36'N 82°18'E, 9.07.1986, leg. V. Kazenas; 1♂, 5 km S SE Tarbogatyj, 3.07.1986, leg. V. Kazenas; 4♂, 20-25 km NE Tansyk, 70 km S SE Ajigyz, 47°25'N 80°15'E, 27.06.1986, leg. V. Kazenas; 1♂, 60 km S SW Ajigyz, mountain Kogulder, 47°N 79°E, 26.06.1986, leg. V. Kazenas; 1♀, 18 km E Ajigyz, steppe, 47°42'N 79°42'E, 2.08.1986, leg. V. Kazenas; 1♂, 33 km S SW Ajigyz, 47°28'N 79°10'E, 26.06.1986, leg. V. Kazenas.

Deposition of types: Holotype in the Institute of Zoology of the Chinese Academy of Sciences (Beijing). Paratypes: 22♂, 6♀ in the Zoological Museum of the Institute of Animal Systematics and Ecology RAS (Novosibirsk); 8♂ in the Institute of Zoology of the Chinese Academy of Sciences (Beijing).

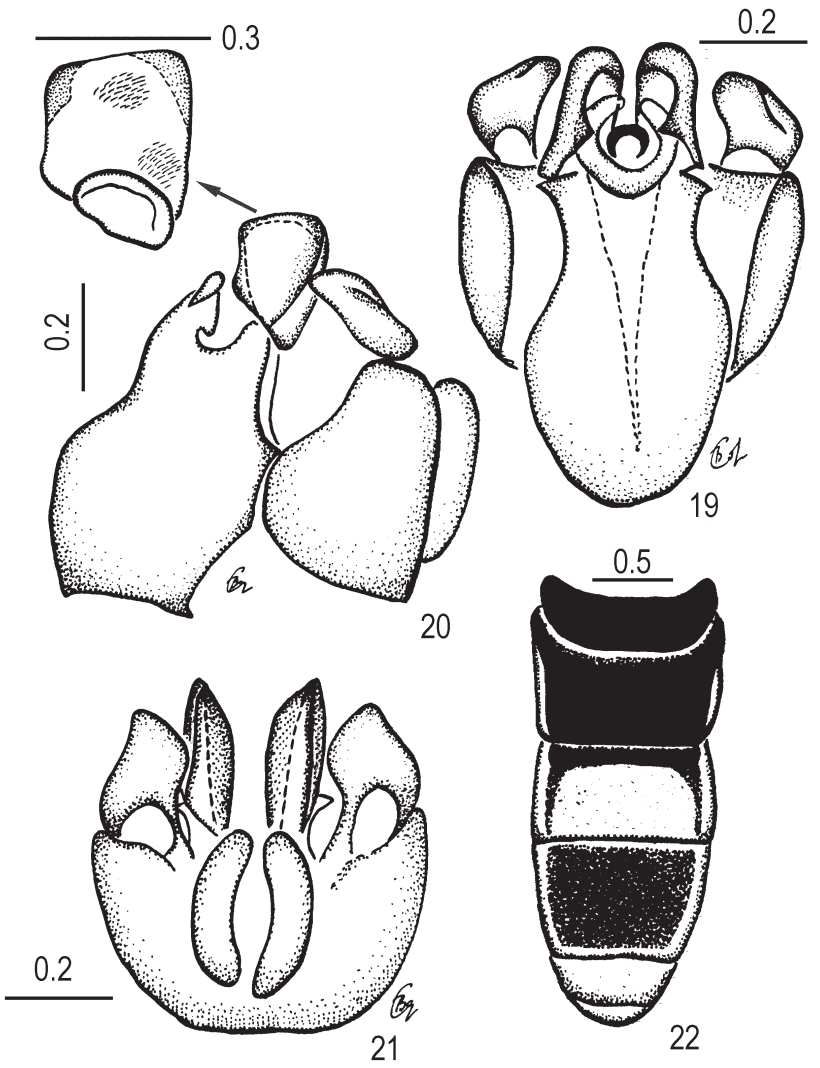
Etymology: The epithet is derived from the latin word "expressus" which is translated as expressive.

Diagnosis: The species is very similar to *P. haemorrhous* Meigen.

The male and the female can be distinguished from *P.haemorrhous* as follows:

1 Lateral abdominal margin of tergites II-V red (fig. 22); vertex with entirely whitish or yellow pile; superior lobe of hypandrium dilated anteriorly, its outer surface with a carina (fig. 20) ……..…... *P. expressus*

– lateral abdominal margin of tergite II always black; vertex with black or mixed black and yellow pile; superior lobe of hypandrium narrowed anteriorly, its outer surface without a carina ……...…… *P. haemorrhous*



Figs 19-22: ***Paragus expressus*** **spec. nov.,** ♂**.** – 19. genitalia, ventral; – 20. genitalia, lateral and inner surface of gonostylus; – 21. genitalia, dorsal; – 22. abdomen, dorsal. – Scales in mm.

Description (figs 19-22):

♂: Head: face distinctly protruding, yellow with broadly black oral margin near eye and black median vitta that occupies 1/4 of the width of the face, covered with whitish hairs. Vertex shining black with all hairs pale. – Antenna dark-brown; 3rd segment small, rounded at apex, 1.8 times as long as wide; arista light-brown.

Thorax: mesonotum shining black, with moderately fine, dense, puncturation and covered with long, erect, whitish hairs. Scutellum entirely black. – Legs: mainly yellowish with yellow pile; fore and mid femora black on basal 1/3, hind femur black on basal 1/2.

Abdomen: lateral margins of tergites II-V red; tergites I and II black, tergites III and IV reddish-brown (fig. 22); sternite IV with straight posterior margin, length little shorter than length of sternite III. – Genitalia: superior lobe of hypandrium dilated in upper part, its outer surface with a carina and its inner surface slightly sclerotised apically (figs 20-21).

Size: body 4.6-5.4 mm; wing 3.6-4.3 mm.

♀: Head: Face distinctly protruding, yellow with broadly black oral margin near eye and a black median vitta which reach the base of antenna and is 1/2-1/3 as wide as face; face covered with whitish hairs. Frons black, shining-metallic, without grey pollinose patch along eye margin and covered with yellow hairs; ocellar triangle with yellow pile; distance between posterior ocelli twice the distance between a posterior ocellus and eye margin. – Antenna dark-brown, 3rd segment 2.2 times as long as wide; arista light-brown.

Thorax: as in the male.

Abdomen: all tergites entirely shining-black; tergites II-V with orange-red lateral margins and covered with long whitish hairs.

Size: body length 4.8-5.8 mm; wing 3.8-4.5 mm.

Distribution (map 2): Russia: Respublika Tyva, Chita Region; Kazakhstan; China.

List of the Chinese species of the genus *Paragus* Latreille, 1804

Subgenus *Paragus* Latreille, 1804

Type-species: *Syrphus bicolor* Fabricius, 1794

P. albifrons (Fallén, 1817)

Material examined (map 3): 2♂ 3♀ China, Beijing Badaling 40º18'N 116ºE. Host: *Aphis* spec., 27-28.06.1973.

P. bicolor (Fabricius, 1794)

Material examined (map 3): 2♂ 2♀, Xinjiang, Wulumuqi, 43º48'N 87º36'E, 19.05.1958, 5.09.1959; 1♂, Xinjiang, Tacheng, 46º42'N 82º54'E, 21.07.1955; 1♂1♀, Xinjiang, Zhaosu, 43º06'N 81º07'E, 1620m, 7.07.1957; 1♀, Suowan, 350-468m, 7.07.1957.

P. clausseni Mutin, 1999

Material examined (map 4): 1♂, Jilin Gaolingzi 44º48'N 128º48'E (now belong to Heilongjiang province), 1.08.1939; 1♀, Helongjiang Suihua, 46º36'N 126º54'E, 12.07.1957; 1♂ 2♀, Jiangsu, Shanghai, 31º12'N 121º24'E, 9.07.1932, leg. O. Piel; 1♂ 1♀, Jiangsu, Shanghai, 29.08.1932, leg. O. Piel; 3♂ 2♀, Jiangsu, Shanghai, 18-19.06.1929; 1♂, Zhejiang, Tianmushan, 30º24'N 119º30'E, 11.07.1936; 1♀, Zhejiang, Tianmushan, 14.07.1937; 1♂, Zhejiang, Tianmushan, Lin'an, 30º12'N 119º42'E, 15.08.1961; 1♀, Anhui Ningguo, 30º36'N 118º54'E, 18.07.1920; 1♂, Beijing, Changling, 30.08.1957.

P. compeditus Wiedemann, 1830

Material examined (map 4): 1♂, Beijing, 30.05.1949; 11♂ 2♀, Xinjiang, Tulufan, 42º54'N 89º12'E, 20-140m, 13-29.06.1958, leg. Li Changqing; 2♂ 1♀, Xinjiang, Yuli, 41º18'N 86º12'E, 1000-1300m, 12.07.1958; 1♂, Xinjiang, Yili, 30.08.1955; 1♂, Xinjiang, Shanshan, 42º48'N 90º12'E, 110m, 20.06.1958; 1♂, Xinjiang, Bosten Hu, 42ºN 87ºE, 9.08.1955; 2♂, Xinjiang, Wulumuqi, 43º48'N 87º36'E, 20-890m, 19.05.1958; 2♂, Xinjiang, Korla, 41º42'N 86º06'E, 1000-1080m, 9.07.1958; 1♂, Xinjiang, Bachu, 39º42'N 78º30'E, 1350m, 19.09.1958; 2♂, Xinjiang, Toksun, 42º42'N 88º36'E, 70m, 21.06.1958; 5♂, Xinjiang, Aksu, 80º25'N 41º12'E, 1330m, 22.07.1959; 1♂, Xinjiang, Aksu, 1330m, 3.09.1959; 1♂, Xinjiang, Hejing, 42º18'N 86º18'E, 950-113m; 22.07.1958; 1♀, Xinjiang Moyu, 37º18'N 79º42'E, 1250m, 8.05.1959, leg. Li Changqing.

P. crenulatus Thomson, 1869

Material examined (map 5): 1♀, Hainan, Yingen, 19ºN 109º48'E, 200m, 10.07.1960; 1♂ 1♀, Hainan Yingen, 200m, 7-8.05.1960, leg. Li Changqing; 1♂ 1♀, Hainan, Tongshi, 18º42'N 109º30'E, 340m, 27.03.1960; 1♀, Hainan Tongshi, 340m, 3.08.1960, leg. Li Shangfu; 3♂, Guangdong Xisha Qundao, 17º30'N 112ºE, 6.07.1974, leg. Shi Yongshan; 1♂, Yunnan, Menglun, 21º54'N 101º12'E, 650m, 29.10.1958; 1♂, Yunnan, Mengyang, 22ºN 100º48'E, 7.06.1957; 1♂, Yunnan, Mengla, 21º24'N 101º30'E, 620-650m, 7.11.1958; 1♂, Yunnan, Mengla, 620-650m, 20.04.1982; 1♀, Yunnan, Xiaomengyang, 850m, 30.08.1958, leg. Meng Xuwu.

P. gulangensis Li & Li, 1990

Material examined (map 3): 1♂, Xizang, Zhag'yab, 30º36'N 97º30'E, 3600m, 7.07.1976; 1♀, Xizang Changdou, 31º06'N 97º06'E, 3900m, 8.08.1976; 1♂ 1♀ Qinghai Qilian, 38º06'N 100º12'E, 2560m, 7.08.1957, leg. Zhang Yiran; 1♂, Nei Mongol, Xilan, 4.07.1967.

P. quadrifasciatus Meigen, 1822

Material examined (map 5): 1♂, Xinjiang, Wulumuqi, 43º48'N 87º36'E, 29.05.1959; 1♂, Xinjiang, Wulumuqi, 980m, 8.09.1959, leg. Tian Afu; 3♂, Xinjiang, Shihezi, 44º12'N 86ºE, 590m, 25.08.1959; 1♂, Xinjiang, Zhaosu, 43º06'N 81º06'E, 1200-1240m, 21.09.1958; 1♂, Henan Anyang, 36ºN 114º18'E, 30.09.1979.

P. leleji Mutin, 1985

Material examined (map 6): 1♂, Xinjiang, Jimsar, 44ºN 89º06'E, 18.05.1955; 1♀, Nei Mongol, 27.07.1983; 1♂, Beijing, Xiangshan, 39º09'N 116º02'E, 26.05.1962; 1♂, Hebei, Xiaowutai Shan, 39º54'N 115ºE, 1400-1500m, 16.07.1964; 4♂, Shandong Laoshan, 36º12'N 120º36'E, 800m.

P. luteus Brunetti, 1913

Material examined (map 6): 1♀, Xinjiang, Shihezi, 44º12'N 86ºE, 590m, 25.08.1959, leg. Li Changqing.

P. milkoi Sorokina, 2002

Material examined (map 5): 1♂, Xinjiang, Tianshan, 43º18'N 86ºN, **2480m,** 18.08.1957.

P. oltenicus Stănescu, 1977

Material examined (map 6): 1♂, Xinjiang, Baicheng, 41º48'N 81º48'E, **1300m,** 22.07.1953.

P. stackelbergi Bańkowska, 1968

Material examined: not found in the collections.

Subgenus *Pandasyopthalmus* Stuckenberg, 1954

Type-species: *Paragus longiventris* Loew, 1857

P. haemorrhous Meigen, 1822

Material examined (map 7): 1♂, Beijing, Badaling, 40º18'N 116ºE, 28.06.1973; 2♂, Xinjiang, Xinyuan, 43º24'N 83º12'E, 850-1200m, 23.08.1957; 4♂, Yunnan, Xishuangbanna, 650m, 12-24.07.1958, leg. Zhang Yiran; 1♀, Yunnan, Xishuangbanna, 650m, 25.08.1957; 4♂, Fujian Chong'an, 27º42'N 118ºE, 740-1210m, 13.07.1960, leg. Zhang Yiran; 1♂, Fujian Chong'an, 740-1210m, 31.08.1988; 1♂, Fujian Chong'an, 580-650m, 24.05.1960, leg. Ma Chengling; 1♂, Shandong, Qixia, 37º18'N 120º48'E, 3.06.1964; 1♂, Hunan, Cili, 29º24'N 111º06'E, 31.08.1988; 1♂, Hunan, Luxi, 28º12'N 110º06'E, 150-250m, 18.06.1988; 2♂, Zhejiang, Zhoushan, 30º06'N 122º06'E, 31.05.1926, 12.05.1931; 1♂, Zhejiang, Moganshan, 30º36'N 119º48'E, 15.04.1937; 2♂ 2♀, Jiangsu, Shanghai, 31º12'N 121º24'E, 5.04.1919, 17.06.1930, 19-30.04.1932; 1♂, Guizhou, Leigong Shan, 26º24'N 108º12'E, 1170m, 3.07.1988; 1♂, Xizang cuomei, 28º24'N 91º24'E, 4150m, 26.07.1974, leg. Huang Fusheng.

P. politus Wiedemann, 1830

Material examined (map 8): 1♂, Sichuan, Muli, 27º54'N 101º12'E, 2300m, 10.04.1986; 7♂, Fujian, Chong'an, 27º42'N 118ºE, 580-900m, 10.05, 22.07.1960; 1♂,

Fujian, Chong'an, 580-640m, 22.08.1960, leg. Ma Chenglin; 1♂, Fujian, Chong'an, 950-1210m, 15.08.1960, leg. Zuo Yong; 3♂, Yunnan, Mengyang, 22ºN 100º48'E, 850m, 7.07.1957, leg. Wang Shuyong; 1♂, Yunnan Mengyang, 850m, 5.09.1958, leg. Meng Xuwu; 1♂, Yunnan, Mengyang, 1200-1600m, 24.07.1958; 1♂, Yunnan, Kongmingshan, 21.09.1957; 1♂, Yunnan, Fohai, 14.08.1957; 1♂, Yunnan, Menglun, 21º54'N 101º12'E, 26.10.1958.

P. rufocinctus Brunetti, 1913

Material examined (map 7): 9♂, Yunnan, Mengyang, 22ºN 100º48'E, 8.-29.07, 22.08.1957, leg. Zang Lingchao.

P. tibialis (Fallén, 1817)

Material examined (map 8): 2♂, Xinjiang, Wulumuqi, 43º48'N 87º36'E, 980m, 5.09.1959, leg. Wang Shuyong; 2♂, Xinjiang, Shihezi, 44º12'N 86ºE, 590m, 25.08.1957, leg. Tian Afu; 1♂, Xinjiang, Tianshan, 43º18'N 86ºN, 7.08.1957; 1♂, Xinjiang, Kashi, 39º24'N 75º54'E, 1335m, 10.07.1959; 1♂, Xinjiang, Gongliu, 43º24'N 82º12'E, 680-700m, 20.08.1957; 2♂, Beijing, 23.06, 14.08.1972; 1♂, Shandong, Laoshan, 36º12'N 120º36'E, 18.07.1937; 1♂, Hunan, Sangzhi, 29º18'N 110º06'E, 1370-1570m, 13.08.1988.

Key to the Chinese species of the genus *Paragus*

♂

1 Eye with alternating fasciae of thick opaque white pile and thin translucent pale pile (Subgenus *Paragus*) ……..……..…… 2

– eye pile uniform and unicolorous (Subgenus *Pandasyopthalmus*) …..... 18

2 Posterior margin of scutellum denticulate (fig. 23). Genitalia: fig. 24. (5.5-6.2 mm) ……..……..…….. *P. crenulatus*

– posterior margin of scutellum not denticulate ……..…… 3

3 Abdomen completely black. Genitalia: figs 25, 90. (4.5-6.0 mm) .... *P. albifrons* (p.p.)

– abdomen mainly reddish-yellow or black with yellow or red band or spot 4

4 Abdomen black with reddish-orange markings on tergites II and III; tergites IV and V always black, without pale markings ……..…..…… 5

– abdomen coloured otherwise, mainly reddish-yellow; tergites IV and V with distinct pale markings ……...…….. 6

5 3rd antennal segment 4 times as long as wide; posterior margin of scutellum with large yellow mark which extends laterally along the margin for a significant distance; colour of abdomen very variable (figs 27-32); posterior end of

aedeagal apodeme invisible in lateral view. Genitalia: figs 26, 89. (3.5-6.8 mm) ……..…. *P. bicolor* (p.p.)

– 3rd antennal segment less than 4 times as long as wide; posterior margin of scutellum with small, obscure, medial yellow spot; posterior end of aedeagal apodeme distinctly visible in lateral view. Genitalia: figs 25, 90. (4.5-6.0 mm) ……..……..…. *P. albifrons* (p.p.)

6 Mesonotum without two pale, pollinose, submedian vittae; abdomen reddish-orange or with dark marginal spots (figs 34, 53) ……..… 7

– mesonotum with two pale pollinose submedian vittae; abdomen with yellow band or transverse spots which extend from lateral margin of tergites (figs 59, 64) …….. 13

7 Mesonotum with adpressed pile ……..…… 8

– mesonotum with erect pile ……..….. 11

8 All femora yellow at base …… 9

– all femora black at base ……..…… 10

9 Abdomen very broad and short, 5 times as wide as the length of tergite II at the middle (fig. 34); 3rd antennal segment 4 times as long as wide (fig. 38). Genitalia: figs 35, 84. (5.8-6.2 mm) ……..…….....…….. *P. oltenicus*

– abdomen elongate, 3-4 times as wide as length of tergite II at the middle (fig. 40); 3rd antennal segment only 2 times as long as wide (fig. 39). Genitalia: figs 41, 83. (6.7 mm) ……..……..... *P. stackelbergi*

10 Posterior margin of sternite IV concave laterally, and with a more-or-less triangular median projection (fig. 42). Genitalia: figs 43, 86. (4.8-7.5 mm) ……..…..... *P. leleji*

– posterior margin of sternite IV straight (fig. 47). Genitalia: figs 48, 87. (6.0-7.0 mm) ……..... *P. gulangensis*

11 Tergite II black with reddish-orange rhomboid spot on middle (fig. 53); hind femora black on basal 2/3. Genitalia: figs 54, 81. (6.5mm) …..... *P. milkoi*

– tergum II reddish-orange with black anterior angle (figs 12, 16); hind femora black on basal 1/2 …… 12

12 Posterior margin of sternite IV undulating (fig. 17); 3rd antennal segment only 2 times as long as wide (fig. 15); superior lobe of hypandrium very large, dilating on upper half. Genitalia: figs 18, 80. (6.6mm) …..…..... *P. balachonovae*

– posterior margin of sternite IV straight; 3rd antennal segment elongate, 4 times as long as wide (fig. 11); superior lobe of hypandrium narrow, bent. Genitalia: fig 13. (6.0 mm) ……..……..…… *P. erectus*

13 Tergite III normally completely red, but sometimes with small dark spot posteriorly; half of tergites II and IV red. Genitalia: figs 26, 89 ……. *P. bicolor* (p.p.)

– tergite III with large, yellow, transverse band or spot (figs 59, 64)……14

14 Oral margin entirely yellow or slightly darkened (figs 1, 58); mesonotum covered with white hairs; hind femora yellow at base and with dark annulus at middle or on apical half ……..... 15

– oral margin distinctly black (figs 63); mesonotum covered with yellow or golden hairs; hind femora black at base, without dark annulus …….....…..... 17

15 Mesonotum with two distinct, long, pale, pollinose submedian vittae, which extend to posterior margin and are interrupted at middle; posterior margin of sternite IV undulating (fig. 69). Genitalia: figs 70, 85. (4.2-6.3 mm) ….... *P. quadrifasciatus*

– mesonotum with two short, or obscurely pale, pollinose submedian vittae; posterior margin of sternite IV straight or with distinct, sharp, median process (fig. 6) ……..... 16

16 Posterior margin of sternite IV with distinct, sharp, median process (fig. 6). Genitalia: figs 4, 79. (6.3 mm) ……..... *P. sinicus*

– posterior margin of sternite IV straight . Genitalia: figs 62, 88. (4.3-6.0 mm) ……..... *P. compeditus*

17 Posterior margin of sternite IV undulating (fig. 65); tergite II less than half as long as tergite III (fig. 64). Genitalia: figs 68, 92. (5.0-6.5 mm) …..… *P. clausseni*

– posterior margin of sternite IV straight; length of all tergites equal; colour of abdomen very variable (figs. 27-32). Genitalia: figs 26, 89. (3.5-6.8 mm) ……..... *P. bicolor* (p.p.)

18 Length of sternite IV approximately equal to length of sternite III (fig. 72) . 19

– sternite IV distinctly shorter, ca. half as long as sternite III (fig. 74) ..…..… 21

19 Lateral margin of all tergites red (fig. 22); vertex with entirely pale hairs. Genitalia: figs 19-21. (4.2-5.4 mm) ……..…..... *P. expressus*

– lateral margin of tergite II always entirely black; vertex with hairs black, or mixed black and yellow ……..... 20

20 Apex of superior lobe of hypandrium distinctly curved externally. Genitalia: figs 76-77, 94. (5.1-5.4 mm) ….....……..…….. *P. rufocinctus*

– apex of superior lobe of hypandrium not curved externally. Genitalia: fig. 73. (3.5-5.3 mm) ……..…….. *P. haemorrhous*

21 Hypandrium concave anteriorly; superior lobe of hypandrium about as long as theca, with ventral margin "heel-shaped" basally; surstylus weakly dilated on upper half. Genitalia: figs 75, 91. (3.5-6.0 mm) ……..... *P. tibialis*

— hypandrium convex anteriorly; superior lobe of hypandrium about 1.5 times as long as theca, with evenly rounded ventral margin; surstylus strongly dilated on upper half. Genitalia: figs 78, 93. (5.2-5.5 mm) ..... *P. politus*

♀

1 Eye with alternating fasciae of thick, opaque white and thin, translucent, pale pile (Subgenus *Paragus*) 2
– eye pile uniform and unicolorous (Subgenus *Pandasyopthalmus*) 16

2 Posterior margin of scutellum rough, denticulate (fig. 23). (5.0-5.8 mm) ..... *P. crenulatus*
– posterior margin of scutellum smooth, without denticulae 3

3 Abdomen completely black (4.5-6.0 mm) ..... *P. albifrons*
– abdomen mainly reddish-yellow or black, with pale markings 4

4 Abdomen black with reddish-orange markings on tergites II and III; tergites IV and V entirely black (4.2-7.2 mm) ..... *P. bicolor* (p.p.)
– abdomen coloured otherwise, mainly reddish-yellow; tergites IV and V each with a distinct antero-lateral pale band or pair of spots 5

5 Tergite III completely red; half of tergites II and IV red. End of abdomen: fig. 33. (4.2-7.2 mm) ..... *P. bicolor* (p.p.)
– tergites with yellow markings 6

6 Mesonotum with adpressed golden pile 7
– mesonotum with erect white, yellow or golden pile 10

7 All femora yellow at base; face with medial vitta, which is 1/6 as wide as the face (fig. 36) 8
– all femora black at base; face with medial vitta, which is 1/3-1/4 as wide as the face (fig. 49) 9

8 Tergite II in the middle 4 times as wide as long (fig. 34); 3rd antennal segment 3 times as long as wide; tergite VII thickened. End of abdomen as in fig. 37. (6.0-6.8 mm) ..... *P. oltenicus*
– tergite II in the middle 3-3.5 times as wide as long (fig. 40); 3rd antennal segment less than 3 times as long as wide; tergite VII not thickened. (6.9 mm) .. *P. stackelbergi*

9 Tergite V concave in lateral view (fig. 50); tergite VIII narrowed in dorsal view (fig. 51); tergites predominantly black (5.5-7.3 mm) ..... *P. gulangensis*
– tergite V flat, not concave in lateral view (fig. 44); tergite VIII dilated in dorsal view (fig. 45); tergites with less extensive black markings (5.5-6.8 mm) ..... *P. leleji*

10 Tergite VII with two distinct dentate projections (fig. 71); mesonotum with two long, pale, pollinose submedian vittae, which extend to posterior margin and are interrupted in the middle (5.0-7.0 mm) ..... *P. quadrifasciatus*
– tergite VII without dentate projections (fig. 66); mesonotum with two short, pale pollinose, submedial vittae, which do not extend to posterior margin, or without such vittae 11

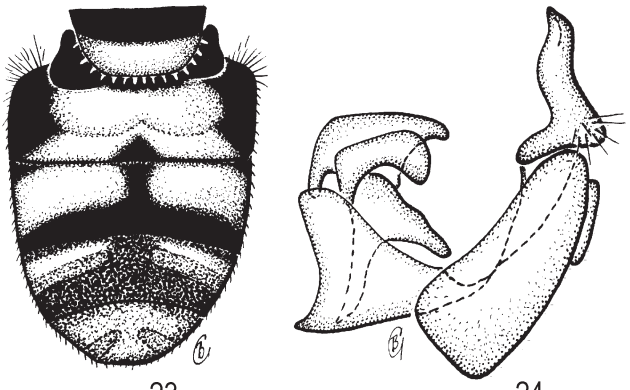
11 Face with distinct black medial vitta (fig. 57) ……...…….…….... 12
– face without black medial vitta, or with narrow, obscurely brown vitta …... 14

12 Tergites III and IV black with yellow transverse band which extends from the lateral margin; tergite V black. End of abdomen as in figs 66, 67. (6.0-7.0 mm) ……..…….....……. *P. clausseni*
– tergites III and IV reddish-orange, with black spot or narrow black band; tergite V red or brownish …….. 13

13 Tergite II black, with reddish rhomboid spot at middle (sometimes this spot is extended laterally); posterior margin of tergite VII without a thickening; tergite VIII with deep cleft. End of abdomen as in fig. 55-56. (6.6 mm) ..…... *P. milkoi*
– tergum II reddish-orange, with black lateral margins; posterior margin of tergite VII with a thickening; tergite VIII without deep cleft (7.0-7.3 mm) ……
……..…….. *P. balachonovae*

14 Tergite II approximately square, black with small, narrow, yellow spot at middle; tergites III and IV black, each with a pair of narrow, elongate, yellow spots anterolaterally, which extend to lateral margin ……..…….. *P. luteus*
– tergite II more than 2 times as wide as long; tergite II black, with a broad yellow spot or a yellow band which extends to lateral margin; tergites III and IV mainly yellow ……..…….. 15

15 Face completely yellow; tergite VII very large in dorsal view. End of abdomen as in figs 60, 61. (4.2-6.0 mm) ….……..……. *P. compeditus*
– face with narrow brownish medial vitta (fig. 3); tergite VII small in dorsal view. End of abdomen as in figs 7, 8. (6.3-6.5 mm) ..... *P. sinicus*

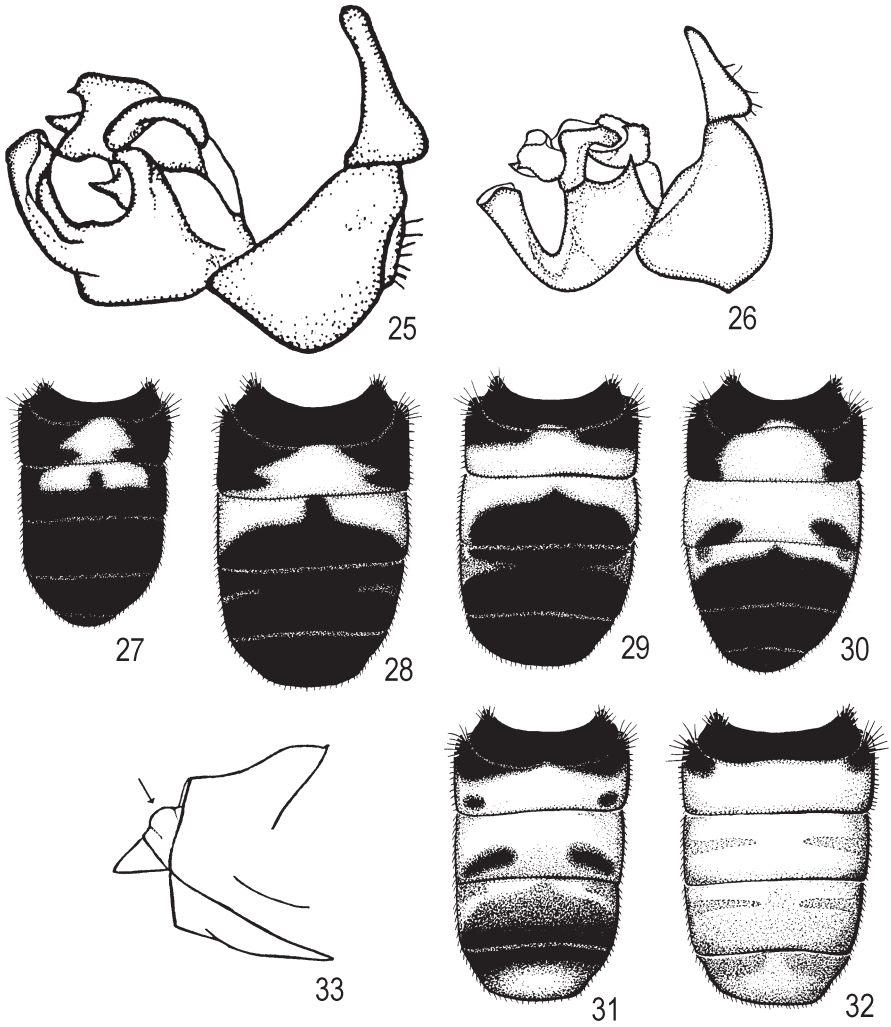


23 24

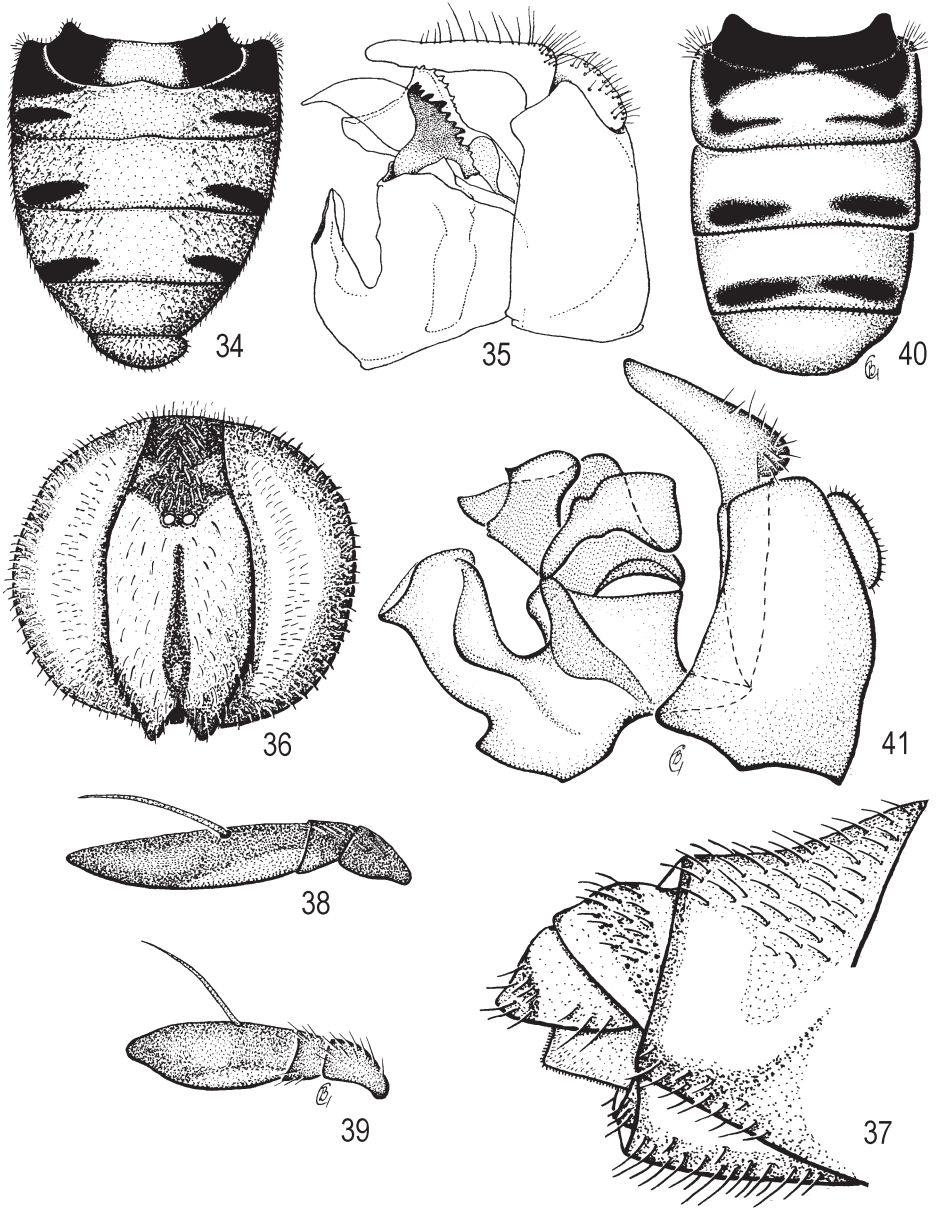
Figs 23-24: *Paragus crenulatus* Thomson, ♂. – 23. scutellum and abdomen, dorsal; – 24. genitalia, lateral.

16 Lateral margins of tergites II-V orange-red (4.8-5.8 mm) …..... *P. expressus*
– lateral margins of tergite II always entirely black …….....……. 17

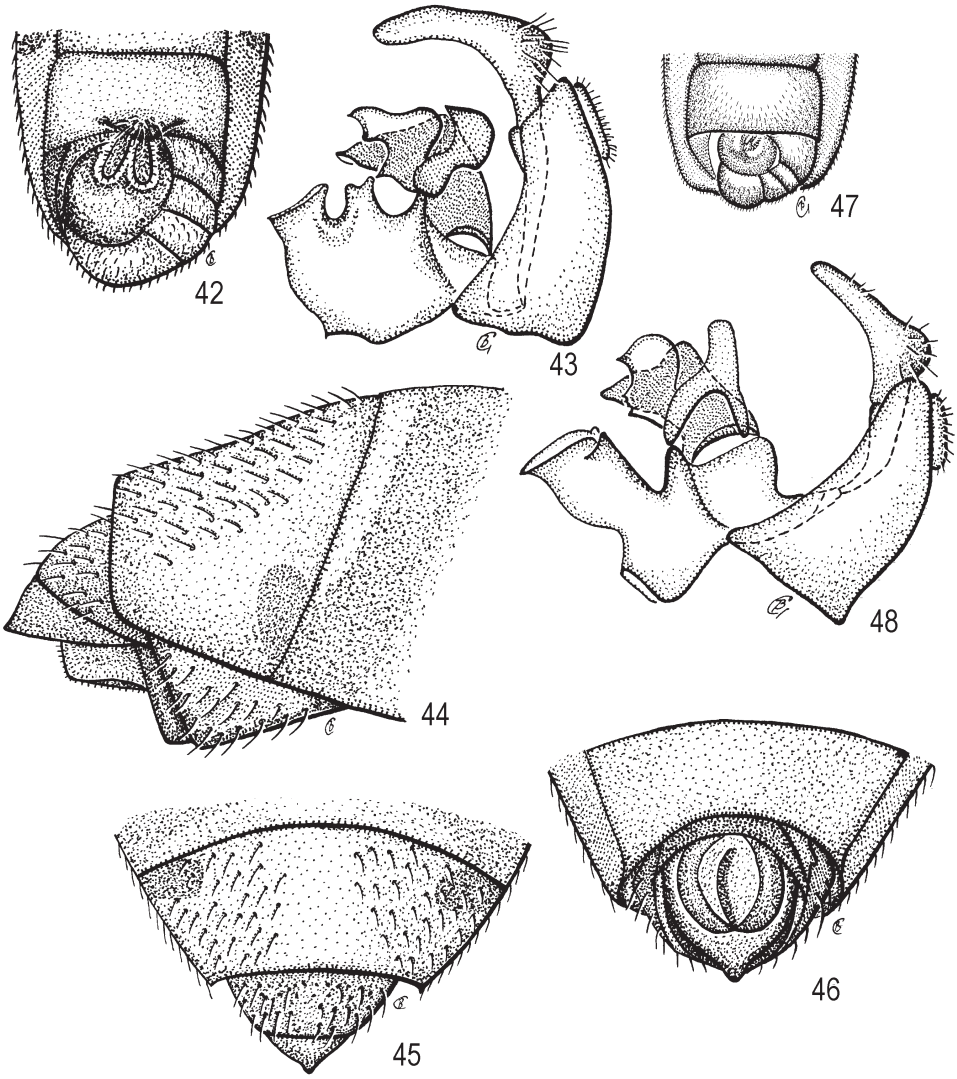
17 Face with narrow medial vitta that is 1/5-1/6 as wide as face; frons covered with predominantly pale hairs (3.5-5.5 mm) ……..…….....….. *P. tibialis*
– face with broad medial vitta which is 1/2-1/3 as wide as face; frons covered with predominantly black hairs (3.5-5.5 mm) …….……..... *P. haemorrhous*



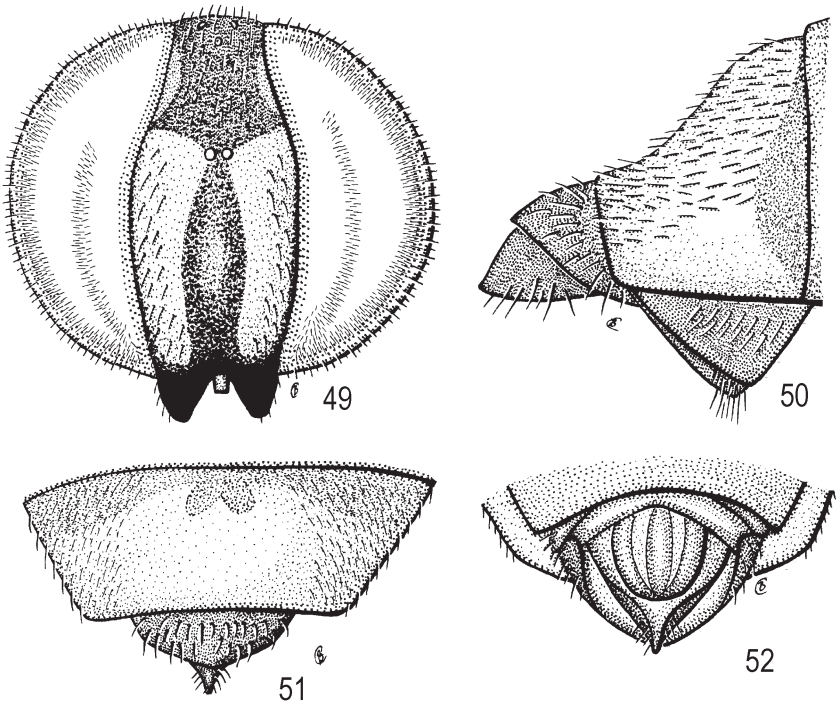
Figs 25-33: ***Paragus*** **spec. – Fig. 25:** ***Paragus albifrons*** **(Fallén)**, ♂ genitalia, lateral (after Goeldlin 1976). – **Figs 26-33:** ***Paragus bicolor*** **(Fabricius)**. – 26. ♂ genitalia, lateral (after Goeldlin 1976); – 27-32. ♂ abdomen, dorsal; - 33. ♀ end of abdomen, lateral (after Goeldlin 1976).



Figs 34-41: *Paragus* spec. – Figs 34-38: *Paragus oltenicus* Stănescu. – 34. ♂ abdomen, dorsal; – 35. ♂ genitalia, lateral (after Hayat & Claussen 1997); – 36. ♀ head, frontal; – 37. ♀ end of abdomen, lateral; – 38. ♂ antenna, lateral. – **Figs 39-41: *Paragus stackelbergi* Bańkowska, ♂.** – 39. antenna, lateral; – 40. abdomen, dorsal; – 41. genitalia, lateral.



Figs 42-48: *Paragus* spec. – Figs 42-46: *Paragus leleji* Mutin. – 42. ♂ abdomen, ventral; - 43. ♂ genitalia, lateral; - 44. ♀ end of abdomen, lateral; - 45. ♀ end of abdomen, dorsal; - 46. ♀ end of abdomen, ventral. – **Figs 47-48: *Paragus gulangensis* Li & Li, ♂.** – 47. abdomen, ventral; - 48. genitalia, lateral.



Figs 49-52: ***Paragus gulangensis*** **Li & Li,** ♀. – 49. head, frontal; – 50. end of abdomen, lateral; – 51. end of abdomen, dorsal; – 52. end of abdomen, ventral.

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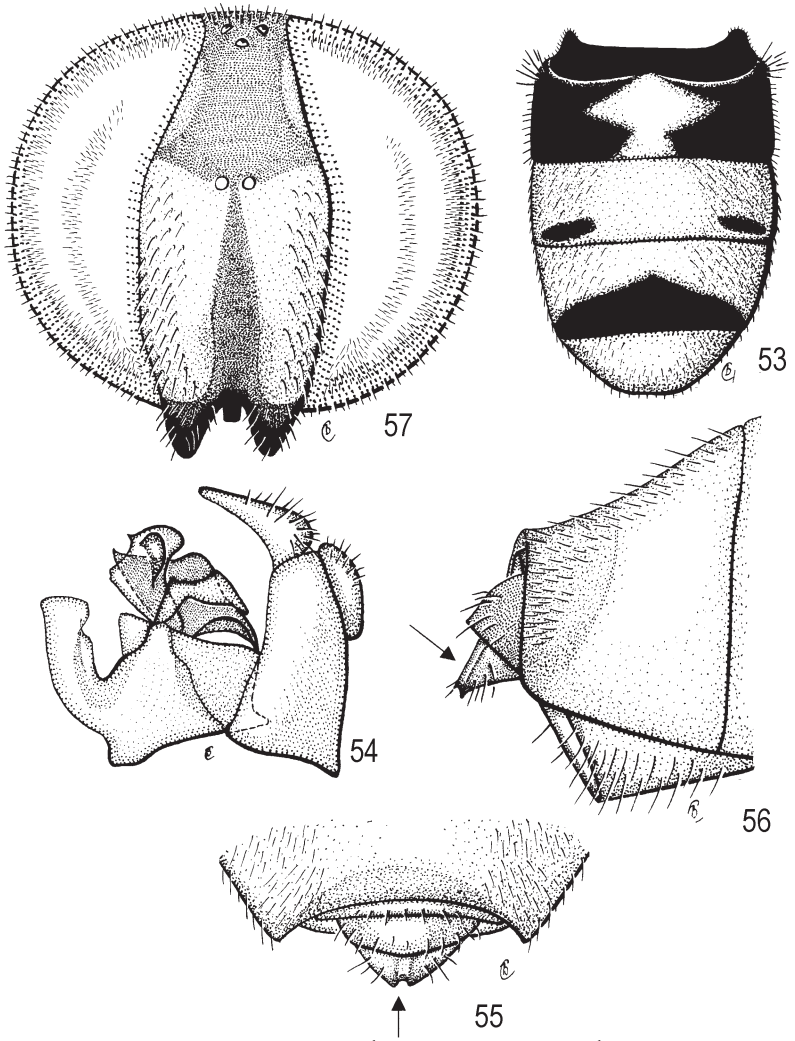

Figs 53-57: ***Paragus milkoi*** **Sorokina.** – 53. ♂ abdomen, dorsal; – 54. ♂ genitalia, lateral; – 55. ♀ end of abdomen, dorsal; – 56. ♀ end of abdomen, lateral; – 57. ♀ head, frontal.

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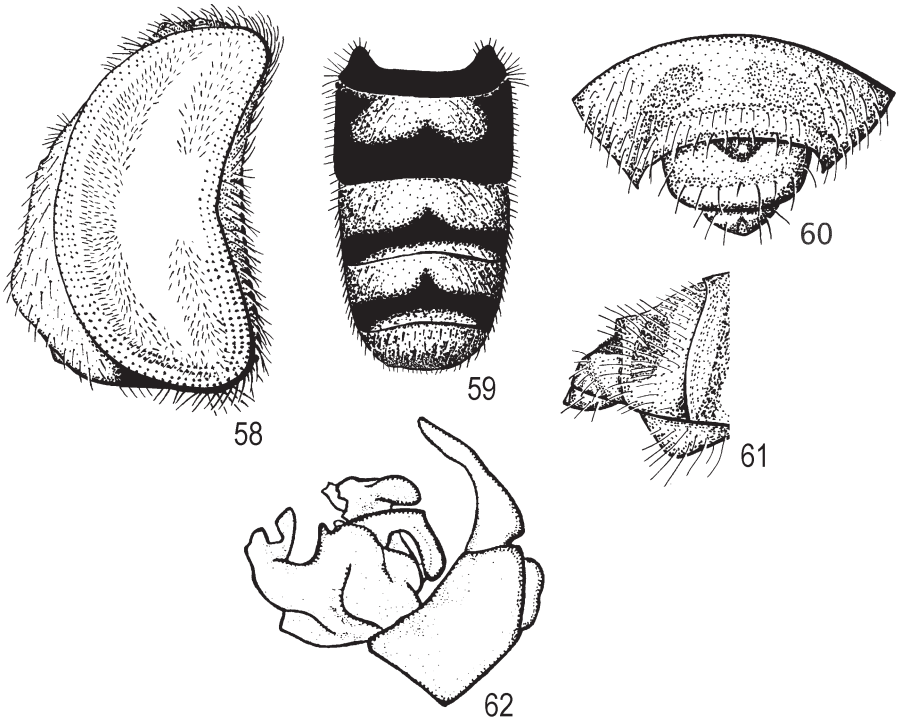

Figs 58-62: *Paragus compeditus* Wiedemann. – 58. ♂ head, lateral; – 59. ♂ abdomen, dorsal; – 60. ♀ end of abdomen, dorsal; – 61. ♀ end of abdomen, lateral; – 62. ♂ genitalia, lateral (after Goeldlin 1976).

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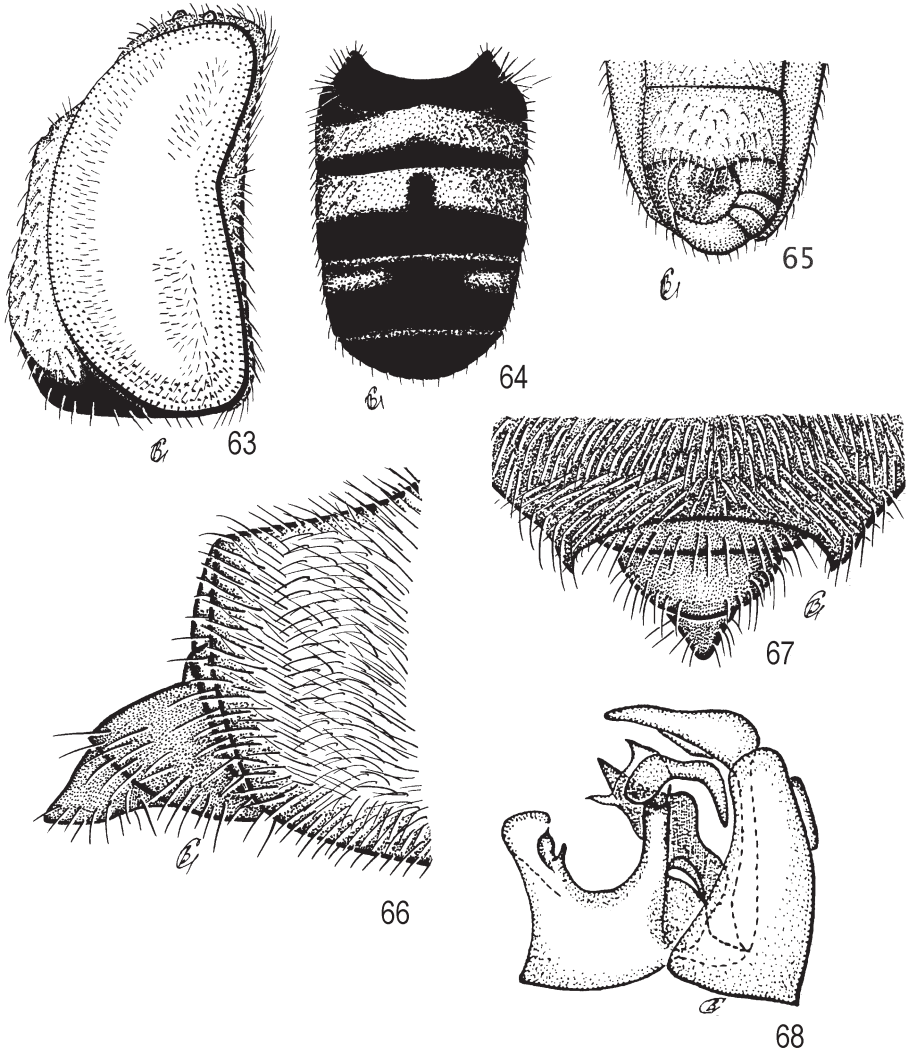
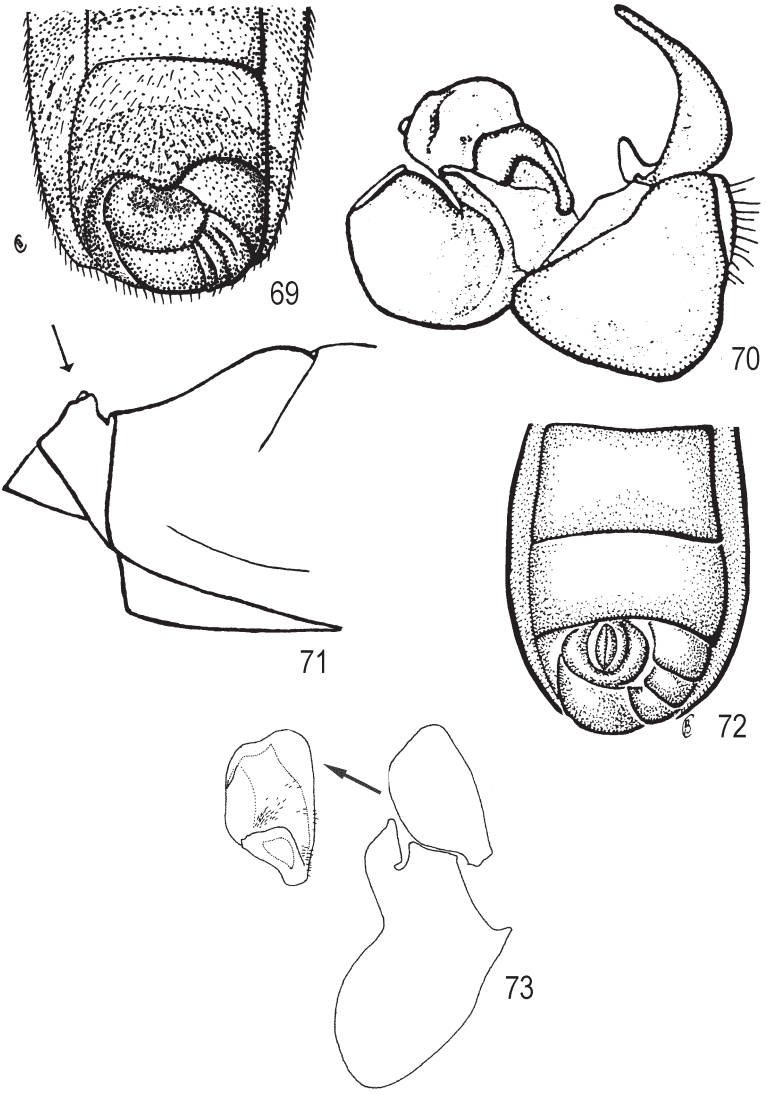
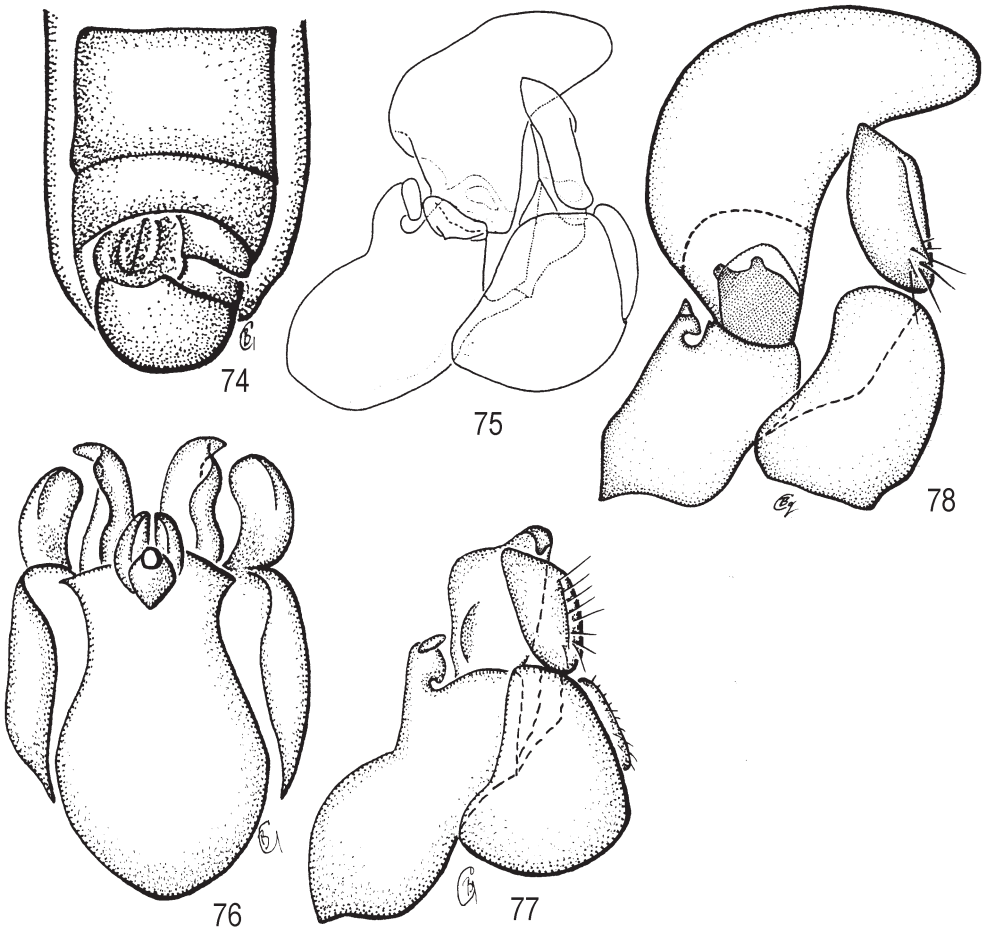


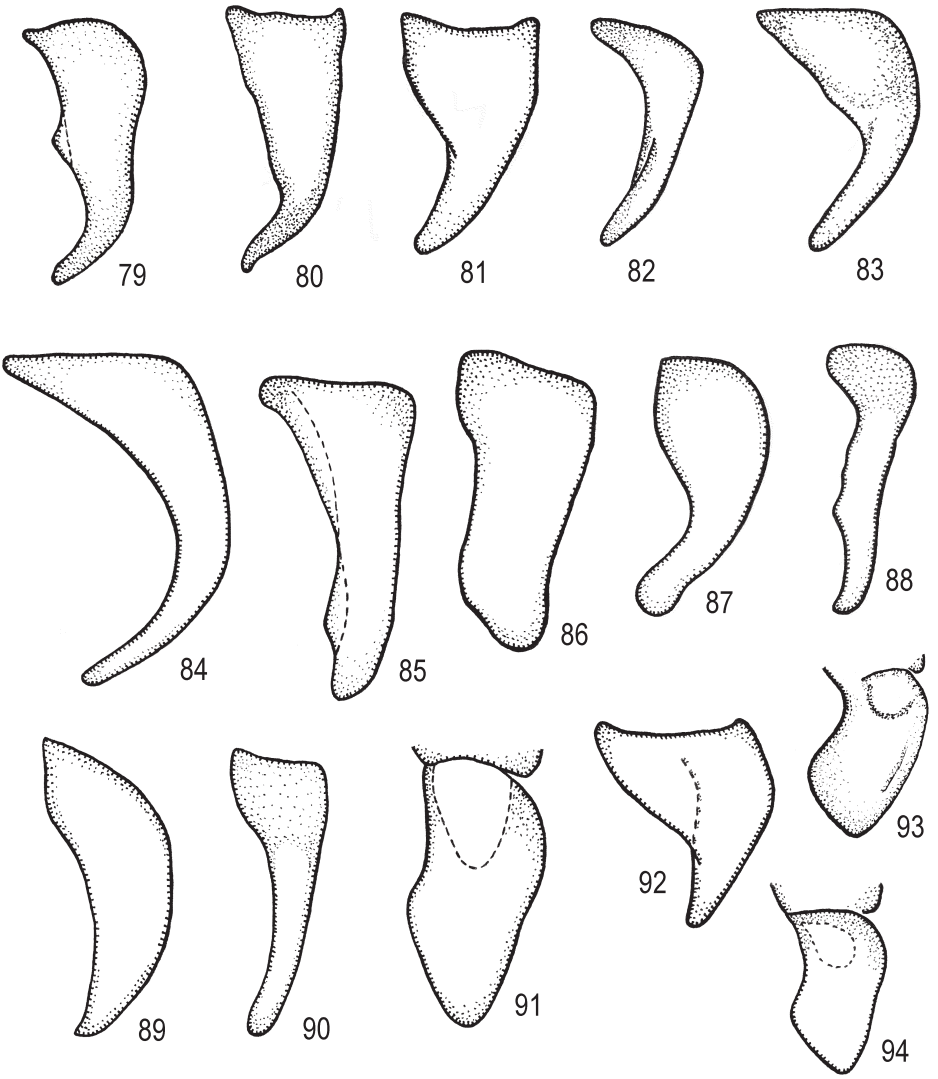
Figs 63-68: ***Paragus clausseni*** **Mutin.** – 63. ♂ head, lateral; – 64. ♂ abdomen, dorsal; – 65. ♂ abdomen, ventral; – 66. ♀ end of abdomen, lateral; – 67. ♀ end of abdomen, dorsal; – 68. ♂ genitalia, lateral.



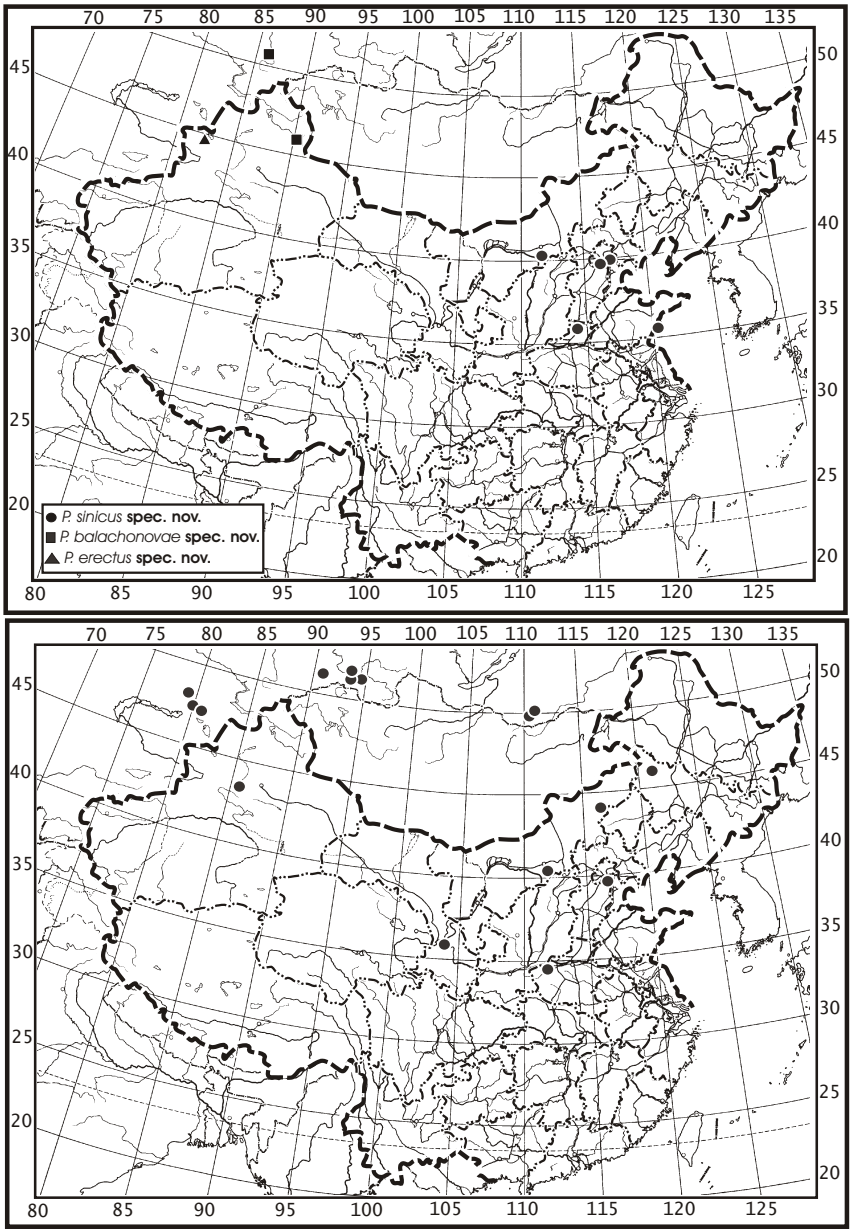
Figs 69-73: *Paragus* spec. – **Figs 69-71: *Paragus quadrifasciatus* Meigen.** – 69. ♂ abdomen, ventral; – 70. ♂ genitalia, lateral (after Goeldlin 1976); – 71. ♀ end of abdomen, lateral (after Goeldlin 1976). – **Figs 72-73: *Paragus haemorrhous* Meigen, ♂.** – 72. abdomen, ventral; – 73. genitalia, lateral and inner surface of gonostylus (after Claussen & Weipert 2004).



Figs 74-78: *Paragus* spec. – **Figs 74-75: *Paragus tibialis* (Fallén).** – 74. ♂ abdomen, ventral; – 75. ♂ genitalia, lateral (after Doczkal 1996). – **Figs 76-77: *Paragus rufocinctus* Brunetti.** – 76. ♂ genitalia, ventral; – 77. ♂ genitalia, lateral. – **Fig. 78: *Paragus politus* Wiedemann.** – ♂ genitalia, lateral.

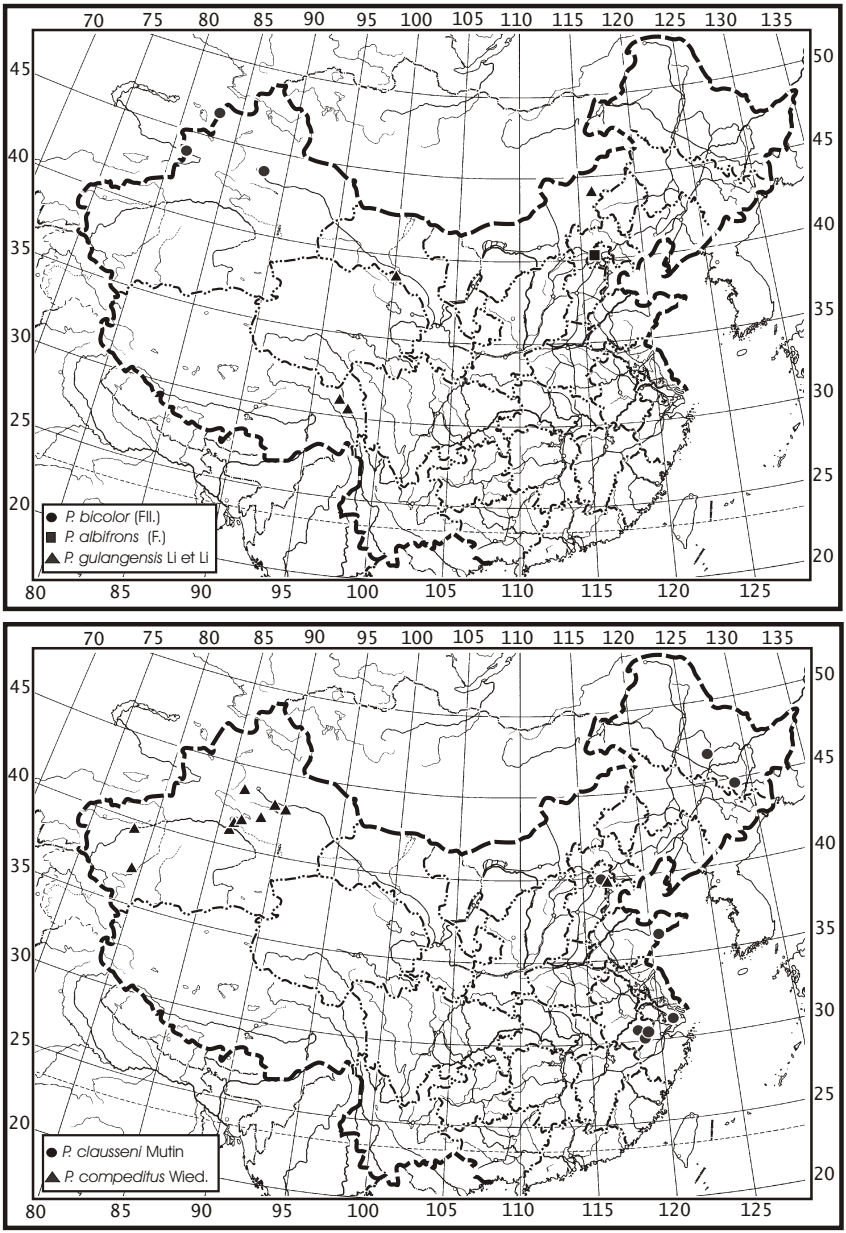


Figs 79-94: *Paragus* spec., left surstylus, strictly dorsal. – 79. *P. sinicus* spec.nov.; – 80. *P. balachonovae* spec. nov.; – 81. *P. milkoi* Sorokina; – 82. *P. crenulatus* Thomson; – 83. *P. stackelbergi* Bańkowska; – 84. *P. oltenicus* Stănescu; – 85. *P. quadrifasciatus* Meigen; – 86. *P. leleji* Mutin; – 87. *P. gulangensis* Li & Li; – 88. *P. compeditus* Wiedemann; – 89. *P. bicolor* (Fabricius); – 90. *P. albifrons* (Fallén); – 91. *P. tibialis* (Fallén); – 92. *P. clausseni* Mutin; – 93. *P. politus* Wiedemann; – 94. *P. rufocinctus* Brunetti.

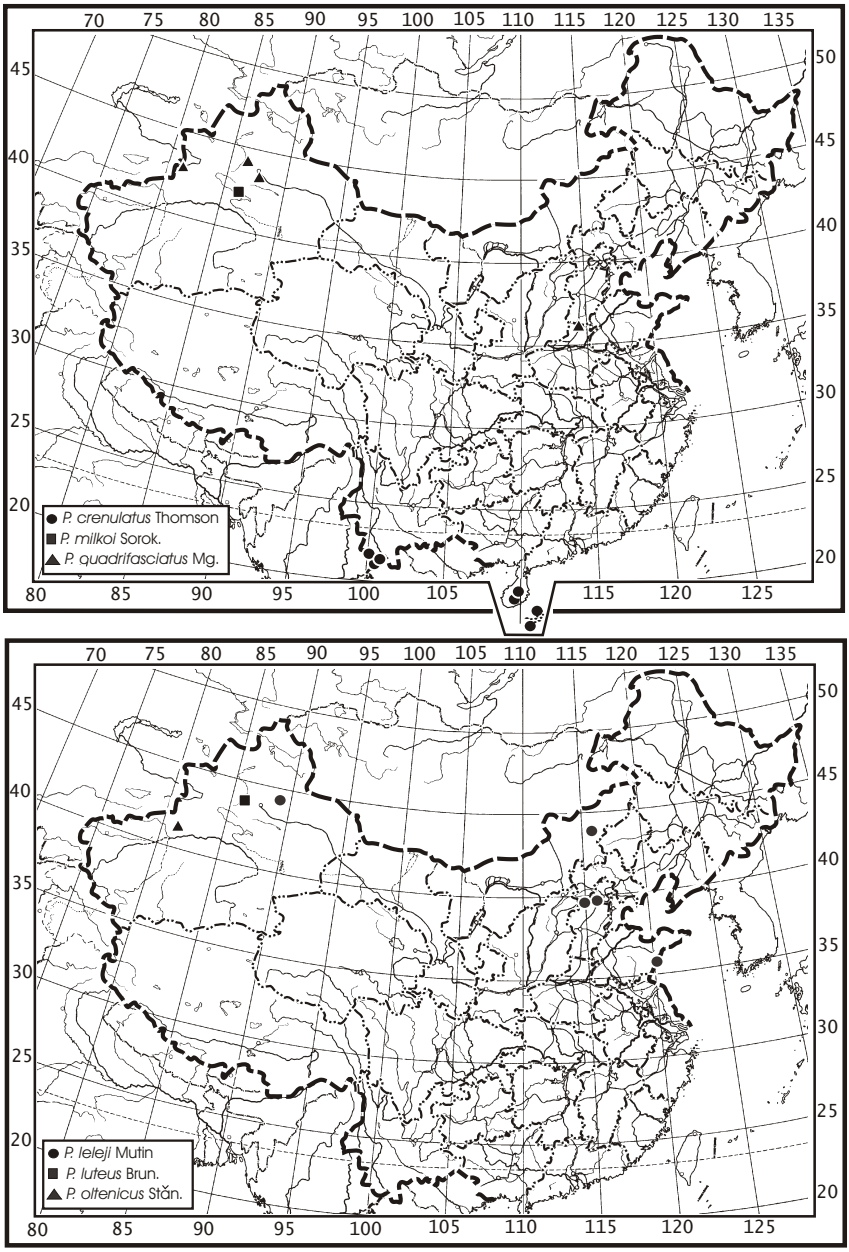


Map 1: Distribution of Paragus *sinicus* spec. nov., *P. balachonovae* spec. nov., *P. erectus* spec. nov. in China and Russia.

Map 2: Distribution of *Paragus expressus* spec. nov. in China, Kazakhstan and Russia.

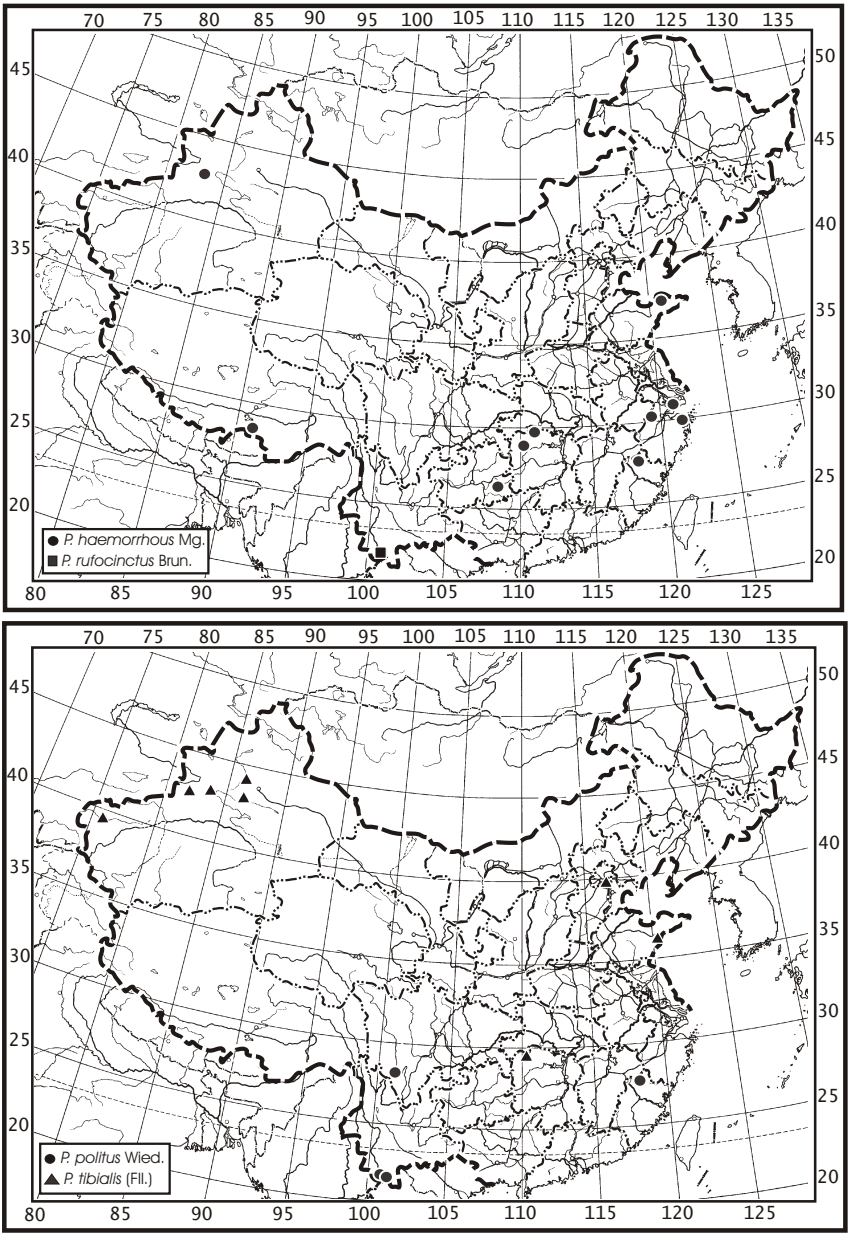


Map 3: Distribution of *Paragus albifrons* (Fallén), *P. bicolor* (Fabricius) and *P. gulangensis* Li & Li in China.
Map 4: Distribution of *Paragus clausseni* Mutin and *P. compeditus* Wiedemann in China.



Map 5: Distribution of *Paragus crenulatus* Thomson, *P. quadrifasciatus* Meigen and *P. milkoi* Sorokina in China.

Map 6: Distribution of *Paragus leleji* Mutin, *P. luteus* Brunetti and *P. oltenicus* Stănescu in China.



Map 7: Distribution of *Paragus haemorrhous* Meigen and *P. rufocinctus* Brunetti in China.
Map 8: Distribution of *Paragus politus* Wiedemann and *P. tibialis* (Fallén) in China.

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IV International Symposium on Syrphidae

29 June - 3 July, 2007

Organizing committee: Gunilla Ståhls-Mäkelä, Antti Haarto and Sakari Kerppola

Siikaranta congress hotel, Siikaranta, Espoo (35 km west of Helsinki)
Address: Naruportintie 68, 02860 Espoo, Finland www.siikaranta.fi

Registration form: The registration for is a Word-document available at www.syrphidae.com, and the organizers wish that participants would download the document, fill in the required information using a computer word processing program, and send as email attachment to syrphidae07@luomus.fi, OR, print out the document and send as a letter to Gunilla at the address:
Dr. Gunilla Ståhls-Mäkelä, Finnish Museum of Natural History, Entomology dept., PO Box 26 (Teollisuuskatu 23), FI-00014 University of Helsinki, Finland, Phone: +358-9-191 44135, Fax: +358-9-191 44430, E-mail: gunilla.stahls@helsinki.fi

Letter of invitation: If you need a letter of invitation, please send request to syrphidae07@luomus.fi

Accomodation and meals: The cost for full board (accomodation and all meals) and registration for shared double room will be approx. 300 €/participant, and for single room approx 350 €/participant. A buffet breakfast, lunch and dinner, and one afternoon coffee break, will be served each full congress day. On the arrival day a buffet dinner will be served, and a breakfast the last day. Possible dietary requirements should be clearly stated on the registration form. The final prices will be given as soon as possible. No advance payments, all payments are made upon arrival, the accommodation can be paid with credit card or cash when checking in to the hotel, and the registration fee (25 €) should be paid in cash at the registration desk.The hotel has 55 double rooms (may be used either as doubles or singles, a few as triples with extra bed) with shower and TV, and guests may use saunas and inside swimming pool every morning free of charge. Outdoor swimming (with sauna) in nearby lake is also possible. Accommodation can also be arranged in a nearby hotel at same cost.

Participants are responsible for their own costs and should try to finance their own trip, accomodation and registration fee. If the organizing committee succeeds in raising sufficient funds for the symposium, part of it can be used for travel and subsidence compensation. Please indicate on the registration form the economic reasons for requiring financial compensation. The organizing committee will make the decisions and inform applicants by email.

Email and internet: During the symposium a computer classroom with 16 computers will be available.

Excursion: Please indicate on the registration form if you wish to participate in the excursion Tuesday 3.7.2007. The excursion bus (buses) leaves at 09.00 from the congress hotel, and arrives ca 19.00 in Helsinki city centre. Please arrange your own accommodation if staying additional night(s) in Helsinki (www.hel.fi or www.hel2.fi/tourism/en/matko.asp). During the excursion we plan to visit a bog protection area in southern Finland, and see some of the archipelago, and there will be a possibility for collecting insects. The price will be around 30 € (including lunch), payment at registration desk. Please indicate in the registration form if you wish to participate!

Abstracts: Abstracts of oral presentations and posters are to be submitted before June 5. All abstracts should contain the following information: Title; authors, including the address of the first author; a brief summary of the contents of the presentation or poster. Abstracts should not exceed 300 words.