



Genus: *Paragus*



Paragus pecchiolii male

(© Sander Bot)

Genus: *Paragus* Latreille 1804

Family: Syrphidae

Subfamily: Syrphinae

Tribe: Paragini

Number of species of this genus found in Europe: 30

Description

Head

The face is yellow, in females and in some males of species of subgenus *Pandasyopthalmus* there is a black medial stripe extending from the oral margin to the base of antennae, and occupying 1/3-2/3 of the facial width. Gena is black, shiny. Lunule is yellow in males, black in females. The eyes are always hairy. The frontal triangle is yellow in the males, white haired, except for some black hairs around the lunule. Frons in females is black with white dusted patches along the eye margins. The ocellar triangle is equilateral. The occiput is black, white dusted, covered with long white hairs. The scape and pedicel of the antenna are black, the basoflagellomere is 2-4 times as long as wide, entirely black or ventrally orange. The arista is black or orange, always bare.



Paragus constrictus male
habitus



Paragus finitimus male
habitus



Paragus hyalopteri male
sternite 4



Paragus finitimus male
sternite 4

Thorax

Scutum is black, covered with yellow hairs, usually with bronze, bluish or greenish shine. In *Paragus* s. str. two dusted medial stripes extend from the anterior margin of the thorax to the transverse suture or scutellum. Pleura is black, shiny, and dorsal part of the katepisternum with long white hairs. Scutellum is black, in most of species of *Paragus* s. str. yellow at its apex.

Wings

Wing membrane is hyaline, densely covered with microtrichia, except for bare area on basal 1/4 or 1/2 of the wing surface. Pterostigma is yellow to creamy brown.

Legs

Femora completely yellow or with basal 1/3 of fore femur, 1/2 of mid femur and 2/3 of hind femur black. Tibiae are yellow or hind tibia is with black medial ring. Tarsi is yellow or hind tarsomeres black, at least dorsally.

Abdomen

The tergites are completely black or black with yellow markings, or mainly orange-brown, frequently the tergites have white dusted bars. Sternites are yellow to black, covered with white hairs. Hind margin of sternite 4 is straight, or convex medially.

General comments on identification to species level

Initially, separation of species in the genus *Paragus* was heavily dependent on variation in the coloration of the abdominal tergites of the adult. Subsequently it was recognised that this was unreliable. This resulted in correction of a significant number of misidentifications and the establishment of various synonyms in the revisionary work which followed. Two subgenera of the genus occur in Europe, which are *Paragus* and *Pandasyopthalmus*. The identification of females from the subgenus *Pandasyopthalmus* is extremely difficult, due to their great morphological variability. The identification of specimens of the *bicolor* group of the subgenus *Paragus* is difficult because of the confusingly high degree of intra-specific variability in the color of the abdomen. Intra-

specific variability in the structure of the male genitalia has also been recorded, in members of the *hermonensis* group.



Paragus haemorrhous male habitus



Paragus quadrifasciatus male habitus



Paragus flammeus male habitus

Differential diagnosis

The genus *Paragus* consists of small-sized hoverflies which are either completely black, or with yellow markings on the tergites, or with a largely orange-brown abdomen. A distinctive feature of the genus is that tergite 1 is very well developed, and particularly so in species of subgenus *Pandasyopthalmus*. In addition, in the other European subgenus, *Paragus*, the facial tubercle is not obvious. Body length ranges from 2 mm to 9 mm. Because of their small size, *Paragus* species can be confused with species belonging to *Psilota*, *Triglyphus*, *Trichopsomyia* and *Pipizella*. From these genera *Paragus* can be distinguished based on its yellow face and distinct facial profile, in *Psilota*, *Triglyphus*, *Trichopsomyia* and *Pipizella* the face is completely black and flat. Moreover, in species where the abdomen in *Paragus* species is either black with yellow markings, or mainly orange-brown, *Paragus* can be distinguished from *Psilota*, *Triglyphus*, and *Pipizella* species, which have the abdomen completely black. In *Trichopsomyia* yellow spots may present on tergite 2. The eyes in *Paragus* species are always hairy. The two European subgenera can be differentiated based on the arrangement of hairs on the eyes is in *Pandasyopthalmus* the eye hairs are uniformly distributed, while in subgenus *Paragus* there are two stripes of denser, longer, white hairs within the general hair covering.



Paragus kopdagensis female head lateral



Psilota aegeae female head lateral



Trichopsomyia flavitarsis female abdomen

Geographical distribution and global diversity

The genus *Paragus* is globally widely distributed. It is absent only from the Neotropical region south of Costa Rica, from New Zealand (Brown, 2009) as well as from polar regions (Speight, 1978). Worldwide about 98 species are known, and 30 species have been recorded for Europe.

Presence in Europe

Albania, Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Gibraltar, Greece, Hungary, Ireland, Isle of Man, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal,

Romania, Russian Federation - European Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom.

Biology

Adult behaviour and flower preferences. Adults of the genus *Paragus* prefer dry, open habitats. They occur on uncultivated pastures, wastelands, sandy grasslands, paths next to forests and marshy meadows. They fly close to the ground in low vegetation. The adult flight period is from March to September (Speight, 2020). The plants they visit belong to genera *Chrythmum* spp., *Galium* spp., *Eryngium* spp., *Euphorbia* spp., *Matricaria* spp., *Potentilla* spp., *Ranunculus* spp., *Sambucus* spp., *Scabiosa* spp., *Sedum* spp., *Solidago* spp., *Stellaria* spp., *Thymus* spp. and *Veronica* spp. (Speight, 2020).

Reproduction and larval biology. *Paragus* larvae are predators of aphids (Goeldlin de Tiefenau, 1974). They are small in size (up to 8 mm long), posteriorly flattened, oval shaped. They are similar to the larvae of the genera *Dasysyrphus*, *Didea*, *Eupeodes* and *Scaeva*. They differ from these genera by the presence of four setae under the posterior respiratory process of the anal segment (Rotheray, 1993).

Seasonal life cycle. Most of the European species of the genus *Paragus* are polyvoltine, with three or more generations per year (Marcos-García and Rojo, 1994). Preimaginal stages have been described for the following European species: *P. absidatus*, *P. albifrons*, *P. haemorrhous* and *P. pecchiolii*.



Type species: *Syrphus bicolor* Fabricius, 1794

Common names:

SV - stäppblomflugor;

FI - pienkirvarit;
NB - steppeblomsterfluer

List of species found in Europe:

1. *Paragus (Pandasyopthalmus) abrogans* Goeldlin, 1971
2. *Paragus (Paragus) absidatus* Goeldlin, 1971
3. *Paragus (Paragus) albifrons* (Fallén, 1817)
4. *Paragus (Pandasyopthalmus) albipes* Gimmerthal, 1842
5. *Paragus (Pandasyopthalmus) ascoensis* Goeldlin & Lucas, 1981
6. *Paragus (Paragus) atlasi* Claussen, 1989
7. *Paragus (Paragus) bicolor* (Fabricius, 1794)
8. *Paragus (Paragus) bradescui* Stănescu, 1981
9. *Paragus (Paragus) cinctus* Schiner & Egger, 1853
10. *Paragus (Pandasyopthalmus) coadunatus* Rondani, 1847
11. *Paragus (Paragus) compeditus* Wiedemann, 1830
12. *Paragus (Pandasyopthalmus) constrictus* Šimić, 1986
13. *Paragus (Paragus) finitimus* Goeldlin, 1971
14. *Paragus (Paragus) flammeus* Goeldlin, 1971
15. *Paragus (Paragus) glumaci* Vujić, Šimić & Radenković, 1999
16. *Paragus (Pandasyopthalmus) haemorrhous* Meigen, 1822
17. *Paragus (Paragus) hermonensis* Kaplan, 1981
18. *Paragus (Paragus) hyalopteri* Marcos-García & Rojo, 1994
19. *Paragus (Paragus) kopdagensis* Hayat & Claussen, 1997

20. *Paragus (Paragus) majoranae* Rondani, 1857
 21. *Paragus (Paragus) medeae* Stănescu, 1991
 22. *Paragus (Paragus) oltenicus* Stănescu, 1977
 23. *Paragus (Paragus) pecchiolii* Rondani, 1857
 24. *Paragus (Paragus) punctulatus* Zetterstedt, 1838
 25. *Paragus (Paragus) quadrifasciatus* Meigen, 1822
 26. *Paragus (Paragus) sexarcuatus* Bigot, 1862
 27. *Paragus (Paragus) strigatus* Meigen, 1822
 28. *Paragus (Paragus) thracusi* Radenković, Likov et Vujić in Radenković et al. 2020
 29. *Paragus (Pandasyopthalmus) tibialis* (Fallén, 1817)
 30. *Paragus (Paragus) vandergooti* Marcos-García, 1986
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