



## Genus: *Orthonevra*



*Orthonevra stackelbergi* male

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**Genus:** *Orthonevra* Macquart, 1829

**Family:** Syrphidae

**Subfamily:** Eristalinae

**Tribe:** Brachyopini

**Number of species of this genus found in Europe:** 14

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## Description

*Orthonevra* are small to medium sized (4-7 mm) hoverflies.

### Head

The eye is bare. The male is holoptic, the female is dichoptic. The basoflagellomere is generally elongated and narrow, it is orange, black-brown or black in colour. The arista is bare. The frons of the male is swollen in species with black legs, and is flat in the species with partly yellow legs. The frons of the male is punctate, usually with a slight median depression that is sometimes absent; it is also covered in whitish, short or moderately long hairs. The female has a flat frons that is covered in short, whitish hairs and has transverse furrows extending from the eye margin to a central longitudinal furrow that runs from the ocellar triangle to the lunule. The peristome always projects, forming a marked angle with the median part of the face. The face of the male is concave to slightly convex and lacks a facial tubercle. The female has a somewhat flattened or concave face and also lacks a facial tubercle.

### Thorax

The scutum is finely punctate, and the general colour is black with bright metallic green sheen. In several species, dull longitudinal stripes (golden or rust colour) are present and are visible on the scutum depending on the orientation of the animal. The scutellum and pleurae are finely punctate and the hair colour is similar to those of the scutum.

### Wings

The wings are transparent, usually with a yellowish tinge or partially infuscated. The basal part of vein R has no long hairs on its dorsal surface but there can be 4 to 6 short bristles present on vein R<sub>5</sub>. Vein M<sub>1</sub> always recurs towards the distal part of the wing or

at a right angle. Vein  $M_1$  is rectilinear over its entire length, or is rectilinear over a short distance and before it bends in a more or less pronounced S shape. The point of convergence of veins  $M_1$  and  $M_2$  is therefore further away from the base of the wing than is the point of the intersection of the veins  $M_1$  and  $R_{4+5}$  or it is at the same distance from the wing base.

## Legs

The legs are simple without any processes or modifications and are black or partly yellow. The yellow parts may be on joints between the femur and the tibia, or on any individual component of the leg. A row of spines is present on the ventral surface of the hind femur. There is no coxal bridge behind the hind coxae.

## Abdomen

The general shape of the abdomen is more or less elongate: more oval in the female but more parallel sided in the male. The maximum width from the abdomen lies at the posterior end of tergite 2. The general colour of the abdomen is identical to that of the thorax. The central part of the tergites is relatively flat and is often dull but all the lateral margins are shiny. The hairs on the tergites are very short, white, dense and erect. The sternites are all shiny, although sternite 1 can be slightly dusted (e.g. in *Orthonevra frontalis*), but they are never entirely dull. The hairs on the sternites are moderately long, about as long as the hairs on the hind leg trochanter. They are white, and more or less recumbent.



*Orthonevra geniculata* male head lateral



*Orthonevra frontalis* male habitus



*Orthonevra geniculata* female head

# General comments on identification to species level

## Differential diagnosis

*Orthonevra* is closely related to *Lejogaster*, *Riponnensia*, *Melanogaster* and *Chrysogaster*, all of which have a hairy postpronotum, bare eyes and short antennae. They have a bare, hair-like arista that sits dorsally upon the basoflagellomere. The mouth edge and/or the facial tubercle protrude and there are transverse grooves on the frons of the female. Wing vein R<sub>4+5</sub> is straight, and cell r<sub>4+5</sub> is closed before the wing tip. Crossvein r-m ends in the basal half of cell dm. The abdomen is parallel sided or oval, and is black, often with a partial or complete metallic sheen. The scutellum has no subscutellar fringe.

The distinguishing characters between these genera are listed below:

***Orthonevra*** Male *Orthonevra* are holoptic; females are dichoptic. Both sexes lack a facial tubercle. Tergites 2-5 are somewhat shiny black centrally and more metallic bronze to greenish at the margins resulting in a large median shiny blackish area on the abdomen that contrasts with the metallic bronze to greenish shiny margins. Sternite 1 lacks dusting and is strongly shiny. The lateral margins of tergite 1 are brightly shining. The basal section of vein R is bare and vein M<sub>1</sub> ends perpendicular to vein R<sub>4+5</sub> but M<sub>1</sub> is bent inward in the middle, so that the apical part of vein M<sub>1</sub> is perpendicular or slightly recurrent to vein R<sub>4+5</sub>, giving cell r<sub>4+5</sub> a more or less rectangular appearance.

***Chrysogaster*** The male is holoptic and has a small facial tubercle whereas the female is dichoptic and it lacks a facial tubercle. The antenna is orange/red and the arista is

located within the ventral two thirds of the head. Tergites 2-5 are dull in the middle and shiny at the margins so they have a large median dull area on the abdomen that contrasts with shiny the margins. Sternite 1 is dusted and dull, tergite 2 is dusted and dull, the tergites are velvety black or black with a purple or green sheen. There are long whitish and recumbent hairs across the median  $\frac{1}{3}$  of the width of tergite 2. The basal section of vein R is bare and vein  $M_1$  ends perpendicular to vein  $R_{4+5}$  and is straight.

***Lejogaster*** Males are dichoptic and both sexes lack a facial tubercle. The basoflagellomere is large in the male and completely black or partly yellowish to orange. The thorax and abdomen are greenish, but for one species (*L. tarsata*) it is partly purple to reddish. Tergites 2-5 are completely shiny. The basal section of the vein R has some long hairs on the dorsal surface. In comparison with *Riponnensia*, the hind femora have no spines or spinose hairs apico-ventrally.

***Melanogaster*** The male is holoptic (with the exception of *M. nigricans*) and has a facial tubercle, the female is dichoptic and it lacks a facial tubercle. The arista is dark brown to black. Tergites 2-5 are completely shiny, but a dull area can be present. Sternite 1 is dusted and dull, tergite 2 is dusted and dull, the tergites are velvety black or black with a purple or green sheen. There are only short/very short hairs across the median  $\frac{1}{3}$  of the width of tergite 2. The basal section of the vein R is bare and the vein  $M_1$  ends perpendicular to vein  $R_{4+5}$  and is straight. The ventral surface of the hind femur has spinose hairs.

***Riponnensia*** Males are holoptic and both sexes lack a facial tubercle. Tergites 2-5 are dull in the central part and shiny at the margins so they have a large median dull area on the abdomen. Sternite 1 is shiny, tergite 2 is shiny on the central part; the tergites have a green to bronze colour. The basal section of the vein R has some long hairs on the dorsal surface. Vein  $M_1$  ends perpendicular to vein  $R_{4+5}$  but the middle part of  $M_1$  is bend inward creating an S-shaped vein. There are spines or spinose hairs present apico-ventrally on the hind femora.



*Chrysogaster virescens* male head lateral



*Riponnensia insignis* male habitus



*Lejogaster metallina* male head lateral

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## Geographical distribution and global diversity

At least 59 species of *Orthonevra* have been described so far. They are worldwide in distribution but most are found in the Eastern North America and Europe. In Europe and the European part of Russia, 13 described species are currently known but additional undescribed species remain a possibility.

### Presence in Europe

Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Isle of Man, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Moldova, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Russian Federation - European Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom.

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## Biology

**Adult behaviour and flower preferences.** Adults forage in dry flower-rich grasslands, including meadows and glades in damp deciduous or mixed forests, often near temporarily flooded areas where they can be quite inconspicuous and may be caught by sweeping vegetation or by searching the flowers. Males of some species fly low and fast over the vegetation and settle regularly; others fly low-down and settle on bare ground, foliage and flowers, including dead *Phragmites* stalks but may also settle on trunks or twigs in the sun. Males have also been reported to hover between tussocks of vegetation. *O. Intermedia* is associated with *Sphagnum* at the margins of pools.

Flowers visited by the adults include *Trollius* spp., *Caltha palustris*, *Crataegus* spp., *Fragaria* spp., *Galium* spp., *Potentilla erecta*, *Ranunculus* spp., *Viburnum opulus*, *Aruncus asiaticus*, *Crepis* spp., *Frangula alnus*, *Rosa canina*, *Rosa rugosa*, *Sambucus nigra*, *Euphorbia palustris*, *Knautia* spp., *Prunus* spp., *Sorbus aucuparia*, *Spiraea* spp., *Iris pseudacorus*, *Anemone nemorosa*, *Bellis* spp., *Caltha* spp., *Cardamine* spp., *Malus sylvestris*, *Menyanthes* spp., *Salix* spp., *Leontodon* spp., *Taraxacum* spp., *Filipendula ulmaria*, *Saxifraga hirculus*, *Cornus* spp., *Pyrus communis*, *Rorippa* spp., *Oenanthe croccata*, *Pimpinella saxifraga*, *Aegopodium podagraria*, *Pastinaca sativa*, *Heracleum sphondylium*, *Torilis japonica*, *Daucus carota* & *Achillea millefolia*.

(Bartsch et al. 2009, Ball et al. 2011, Bot and Van de Meutter 2019, Morris 1998, Reemer et al. 2009, Speight 2020, van Steenis et al. 2015, Vujčić 1999, IUCN 2021)

**Reproduction and larval biology.** The larvae are semi-aquatic to aquatic and are usually associated with springs and flushes where they occur in wet, organically-enriched mud and probably feed on nutrient-rich decaying plant material. Larvae of *O. tristis* have been found among plant roots beside seepages in unimproved alpine grasslands. Rotheray (1993) provides a useful introduction to larvae of Chrysogastrines.

**Seasonal life cycle.** The flight period ranges from late March until mid-September, depending on the species. Most species are univoltine, although it has been shown that *O. nobilis* is bivoltine in the Britain. Each species has a distinct flight period; some, such as *O. geniculata*, fly in spring and early summer depending on latitude, whilst others fly later on, giving an overall flight period of late March to September.



**Type species:** *Chrysogaster elegans* Wiedemann in Meigen, 1822

**Common names:**

SV - glansblomflugor;  
FI - hammasvaskiset;  
NB - glansblomsterfluer

## List of species found in Europe:

1. *Orthonevra arcana* Ricarte and Nedeljkovic, 2022
2. *Orthonevra brevicornis* (Loew, 1843)
3. *Orthonevra elegans* (Meigen, 1822)
4. *Orthonevra erythrogona* (Malm, 1863)
5. *Orthonevra frontalis* (Loew, 1843)

6. *Orthonevra gemmula* Violovitsh, 1979
  7. *Orthonevra geniculata* (Meigen, 1830)
  8. *Orthonevra incisa* (Loew, 1843)
  9. *Orthonevra intermedia* Lundbeck, 1916
  10. *Orthonevra montana* Vujić, 1999
  11. *Orthonevra nobilis* (Fallén, 1817)
  12. *Orthonevra plumbago* (Loew, 1840)
  13. *Orthonevra stackelbergi* Thompson & Torp, 1982
  14. *Orthonevra tristis* (Loew, 1871)
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