The tribe Chrysogasterini (Diptera: Syrphidae) in the Balkan Peninsula, with the description of three new cryptic species

[Die Arten der Tribus Chrysogasterini (Diptera: Syrphidae) der Balkanhalbinsel nebst der Beschreibung von drei neuen kryptischen Arten]

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Abstract This paper reviews the species of the tribe Chrysogasterini based on material collected in the Balkan Peninsula. Fifteen species in five genera are recorded, and a review of their distribution is given. Three new cryptic species are recognized and described. Two of them, ***Chrysogaster mediterraneus* spec. nov.** and ***Riponnensia morini* spec. nov.**, were collected in the Mediterranean and Submediterranean areas. The first is related to the west Palaearctic species *C. solstitialis* (FALLÉN, 1817) and the second one to *R. daccordii* (CLAUSSEN, 1991), an endemic of Corsica. The third species, ***Orthonevra montana* spec. nov.**, is found on several Balkan mountains, ranging from Bosnia-Herzegovina and Serbia to Greece. The species is similar to *O. tristis* (LOEW, 1871), characteristic of the Alps and Pyrenees. The existing published keys are modified to incorporate the new species.

Key words Syrphidae, Chrysogasterini, new species, *Chrysogaster*, *Riponnensia*, *Orthonevra*, Balkan Peninsula

Zusammenfassung Vorliegende Arbeit gibt einen Überblick der Arten der Tribus Chrysogasterini anhand von Material, das auf der Balkanhalbinsel gesammelt wurde. Insgesamt 15 Arten aus 5 Gattungen werden gemeldet und Angaben zu ihrer Verbreitung gemacht. Unter den bekannten Spezies der Tribus befanden sich 3 neue kryptische Arten. Zwei davon, ***Chrysogaster mediterraneus* spec. nov.** und ***Riponnensia morini* spec. nov.**, stammen aus den mediterranen und submediterranen Gebieten des Balkans. Erstgenannte Art ist mit der westpalaearktischen *C. solstitialis* (FALLÉN, 1817) verwandt und die zweite Spezies weist Beziehungen zu der auf Korsika endemischen *R. daccordii* (CLAUSSEN, 1991) auf. Die dritte Spezies, ***Orthonevra montana* spec. nov.**, wurde in verschiedenen Gebirgsregionen des Balkans gefunden, die von Bosnien-Herzegowina und Serbien bis Griechenland reichen. Die Art ähnelt der in den Alpen und Pyrenäen verbreiteten *O. tristis* (LOEW, 1871). Die existenten Schlüssel wurden um die neuen Arten erweitert.

Stichwörter Syrphidae, Chrysogasterini, neue Arten, *Chrysogaster*, *Riponnensia*, *Orthonevra*, Balkanhalbinsel

Introduction

The taxonomic status of the genera of the tribe Chrysogasterini has recently been analyzed (MAIBACH et al. 1994a, 1994b; MAIBACH & GOELDLIN DE TIEFENAU 1995). The genera *Lejogaster* RONDANI, *Orthonevra* MACQUART and *Chrysogaster* MEIGEN have been redefined, the genus *Melanogaster* RONDANI has been revalidated, and the genus *Riponnensia* MAIBACH, GOELDLIN DE TIEFENAU & SPEIGHT has been described. The presence of 54 species in the Palaearctic has been established. The recent faunistic papers on the family Syrphidae in the Balkan Peninsula (DIRICKX 1994, VUJIĆ & ŠIMIĆ 1994, VUJIĆ 1995) contain data on 14 species of tribe Chrysogasterini. This paper presents a taxonomic revision of the genera *Chrysogaster*, *Melanogaster*, *Lejogaster*, *Orthonevra* and *Riponnensia* based on material collected in the Balkan Peninsula.

Material and methods

The material recorded here belongs to published and unpublished collections containing Chrysogasterini species collected throughout the territory of the Balkan Peninsula and deposited in the Natural History Museum in Belgrade, Yugoslavia (leg. GLUMAC; coll. BEO), the Bosnia-Herzegovina Museum, Sarajevo, (leg. APFELBECK, HENSCH, HILF, WINNEGOUTH; coll. SAR), the Croatian Museum of Natural History, Zagreb (leg. LANGHOFFER; coll. ZAG) and the Institute of Biology, Novi Sad, Yugoslavia (leg. DEVIĆ, DRAGIN, MILANKOV, ŠMIĆ, RADENKOVIĆ, M. RADIŠIĆ, P. RADIŠIĆ, D. RADNOVIĆ, S. RADNOVIĆ, RADOVIĆ, TANURDŽIĆ, VUJIĆ; coll. NS).

The identification of species was based on several papers (STACKELBERG 1953, 1959; SPEIGHT 1980, CLAUSSEN 1991, MAIBACH et al. 1994a, 1994b; MAIBACH & GOELDLIN DE TIEFENAU 1995). The nomenclature used here follows MAIBACH et al. (1994a, 1994b). Morphological nomenclature follows that of SPEIGHT (1987) and MAIBACH et al. (1994a) for the male genitalia.

The survey of species contains published records (PR) and new data (ND) in the section entitled "Material". The data are presented according to the states (Slo - Slovenia, Cro - Croatia, BH - Bosnia-Herzegovina, Mtg - Montenegro, Srb - Serbia, Mac - FRY Macedonia, Blg - Bulgaria, Gre - Greece). All localities are marked according to their UTM sign. The biogeographical division of the Balkan Peninsula follows VUJIĆ (1996). The section titled "Distribution" contains data on range (PECK 1988, DIRICKX 1994, MAIBACH et al. 1994a, 1994b; DZIOCK 1998), distribution of species over the Balkan Peninsula (BP) and the first record of the species in certain states (+). Unchecked records are marked with (?).

Results

Survey of the species of tribe Chrysogasterini in the Balkan Peninsula

Chrysogaster basalis LOEW, 1857

(Figs 10, 15)

Chrysogaster basalis: VUJIĆ 1995
Chrysogaster chalybeata: LANGHOFFER 1919 (in part); GLUMAC 1955a (in part)
Chrysogaster macquarti: GLUMAC 1955a (in part)
Chrysogaster splendens: GLUMAC 1955a (in part)

Material: PR: Cro: LANGHOFFER, 1919 (Vratnik); Srb: GLUMAC, 1955a (Homolje, Tara, Kopaonik, Nerodimlje) Mac: VUJIĆ, 1995 (Ograždeni). ND: coll. NS: Srb: Kopaonik, DN-89, leg. VUJIĆ: 1♀, 4.VII.1986; leg. TANURDŽIĆ: 1♀, 18.VI.1996; Šar-planina, DM-97, leg. VUJIĆ: 2♂♂, 2♀♀, 19.VII.1986. Gre: Pindos mountains, Kastania, 15.VII.1998, leg. RADENKOVIĆ: 1♀; leg. VUJIĆ: 1♀; coll. SAR: Cro: leg. HENSCH: Krapina; BH: leg. WINNEGOUTH: Krupac, Renovica; Mac: leg. WINNEGOUTH: Ohrid.

Distribution: Central and South Europe (Germany, France, Spain, Italy, BP, Romania). BP: Cro (+), BH(+), Srb (+), Mac, Gre (+).

Note: For a long time (LANGHOFFER 1919, GLUMAC 1955a) this species was called by the synonym *chalybeata* MEIGEN, 1822 of the related species *Chrysogaster cemiteriorum* (LINNAEUS, 1758). VUJIĆ (1995) recognized *C. basalis* in this part of Europe for the first time. The species appears at higher altitudes on the Balkan mountains.

Chrysogaster mediterraneus spec. nov.

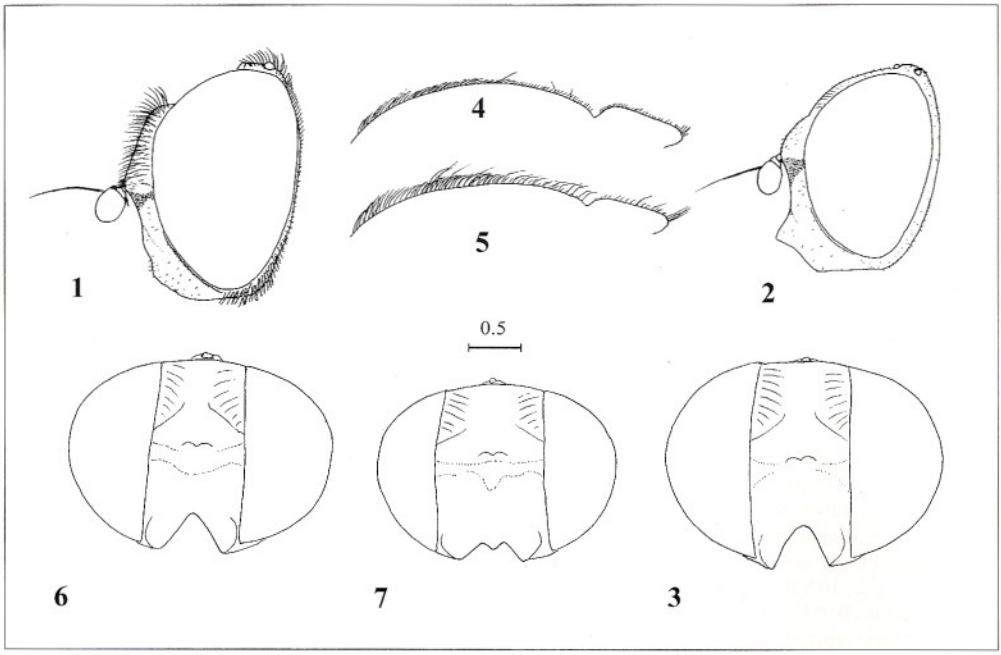
(Figs 1-4, 8, 13)

Material: Holotype: ♂ (BEO, coll. 595773, Inv. No. 32); Mtg: Boka Kotorska, Morinj, CN-00, 18.V.1995. leg. VUJIĆ. Paratypes (coll. NS, except allotype): Mtg: Boka Kotorska, Morinj, CN-00, leg. VUJIĆ: 4♂♂, 1♀ 5.-18.V. (♀ allotype, BEO, coll. 595773, Inv. No. 33); leg. P. RADIŠIĆ: 1♂, 6.V.1994; Mac: Baba, EL-14, leg. VUJIĆ: 1♂, 17.VI.1990.

Diagnosis: In its overall appearance the species resembles *C. solstitialis* (FALLÉN, 1817): wing surface dark-brown; central disc of mesoscutum (mesoscutum except lateral sides) dull; face narrow: head width in relation to face width at a level below the antennae = ♂ 2.12-2.34; ♀ 2.42-2.68 (Figs 3, 6); in *C. virescens* LOEW, 1843 = ♂ 1.8; ♀ 2.0 (Figs 7, 11, 16), in *C. rondanii* MAIBACH et GOELDLIN DE TIEFENAU, 1995 (Figs 12, 17) = ♂ 1.7; ♀ 1.6; lateral sides of tergite 2 posteriorly with black hairs; surstylus without apical thorn (Figs 13-17). The differences between the two species are: ♂: central disc of mesoscutum in *C. mediterraneus* dull on anterior two-thirds, in *C. solstitialis* entirely dull; mesoscutum in *C. mediterraneus* with more adpressed hairs (Figs 4, 5); surstylus longer in *C. mediterraneus* (Figs 13, 14), hypandrium with oval apicodorsal lobe of aedeagus (Fig. 8a: x), in *C. solstitialis* extended (Fig. 9a: x); aedeagal envelope with different shape (Figs 8b: y; 9b: y); ♀: posterior fourth of mesoscutum in *C. mediterraneus* shining, in *C. solstitialis* matt; in *C. mediterraneus* hairs on laterodorsal surface of femur 2 of the same length or shorter then width of tibia 2; in *C. solstitialis* hairs of the same length or longer then width of tibia 2 (in some cases identification of females can be still uncertain).

Description

Male. Body entirely black, distinctly dull; wings dark-brown. **Head** (Fig. 1): Eyes bare, holoptic; length of eye-meeting 2 times longer than height of ocellar triangle. Facial knob in lateral view indistinct, rounded. Frons inflated with a median furrow; anterior angle of approximation of eyes 80°. Frons and face black, shining, except for a band of white dusting below the antennae reaching laterally to the eye margins. Face pilosity sparse, black and



Figs 1-7: *Chrysogaster* spp. – **1-4:** *C. mediterraneus* spec. nov. (Boka Kotorska, Montenegro); – **5, 6**: *C. solstitialis* (FALLÉN, 1817) (Dubašnica, Serbia); – **7**: *C. virescens* LOEW, 1843 (Niedersachsen, Germany). – **1**: head of male, lateral view; – **2**: head of female, lateral view; – **3, 6, 7**: head of female, anterior view; – **4, 5**: pilosity on mesoscutum of male, lateral view. Scale bar = 0.5 mm.

whitish. Frons and occiput black haired. Ocelli equidistant. Antennae: basal segments dark-brown, flagellomere reddish-orange, oval (length in relation to width = 1.2-1.3).
Thorax: black, integument with a fine puncturation; mesoscutum dull in anterior and central parts, laterally and posteriorly shining. Mesoscutum covered with shorter and longer black hairs reclined backwards (Fig. 4). Hairs on scutellum short, a few of them longer on the scutellar margin. Pleurites shining, slightly dusted, covered with black hairs mostly reclined backwards. **Wings** obscure, dark-brown, entirely covered with microtrichia. **Legs** dark, predominantly black haired. Calypters and halteres dark-brown.
Abdomen: oval; central disc (central areas of tergites 1-4) dull and dusted; lateral margins shining, except entirely dull tergite 1. Hairs on tergites black, except lateral sides of tergite 1 and tergite 2 in anterior half covered with erect, whitish hairs. Tergite 2 with adpressed hairs on central part mixed with few long erect hairs; hairs of tergites becoming entirely adpressed towards tip of abdomen. Sternites shining, except dull sternite 1, all covered with adpressed, predominantly yellowish hairs. **Genitalia**: (Figs 8, 13): surstyli (Fig. 13) elongated, without apical thorn; apicodorsal lobe of aedeagus oval (Fig. 8a: x).

Female: In general appearance black with bronze reflections; wing dark-brown. Resembling the male, except normal sexual dimorphism: eyes dichoptic (Fig. 2); pilosity much shorter and paler; frons with 8-9 lateral furrows (Fig. 3); central disc of mesoscutum less dull, almost undusted; hairs on mesoscutum very short; central part of tergite 2 with few longer hairs, reclined backwards.
Body length: 6.5-8.2 mm

Etymology: The name is the Latin adjective "*mediterraneus*" which reflects the preferred environment of the species.

Distribution: probably an endemic species in the Balkan Peninsula. BP: Mtg (+), Mac (+).

Note: It is probable that *C. mediterraneus* is a Balkan endemic, with habitats in the Mediterranean and Submediterranean areas. The species was collected in the deep Adriatic bay, Boka Kotorska, in Montenegro and on the mountain Baba in FRY Macedonia.

Chrysogaster solstitialis (Fallén, 1817)

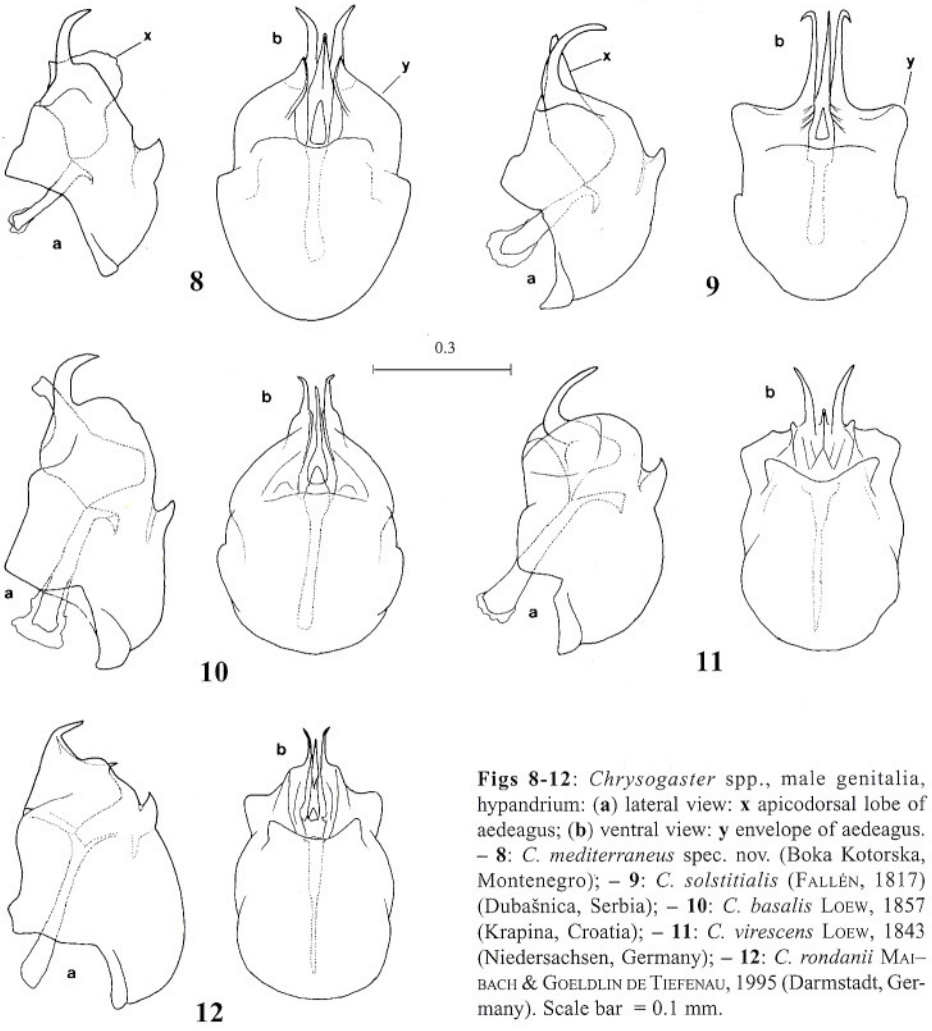
(Figs 5, 6, 9, 14)

Chrysogaster macquarti: Langhoffer 1919 (in part)
Chrysogaster solstitialis: Langhoffer 1919, Glumac 1955a, Šimić 1987, Vujić & Glumac 1994, Vujić & Šmić 1994.

Material: LD: Cro: Langhoffer 1919 (Zagreb, Sljeme, Pregrada); Mtg: Šimić 1987 (Durmitor); Srb: Vujić & Glumac 1994 (Fruška gora); Vujić & Šmić 1994 (Vršačke planine). ND: coll. NS: Slo: Julijske Alpe (Vršič, VM-04, leg. Vujić: 1♂, 18.VI.1988.) Kamniške in Savinjske Alpe (Kamniška Bistrica, VM-63, leg. Vujić: 1♂, 16.VI.1988; Logarska dolina, VM-63, leg. Vujić: 1♂, 1.VII.1989.); BH: Jahorina, CP-04, leg. Radović: 2♀♀, 31.VII.1989; Javor, CP-29, leg. Vujić: 2♂♂, 1♀; Konjuh, CQ-00, leg. Radović, Vujić: 7♂♂; Srb: Dubašnica, EP-77, EP-78, leg. Dević, Vujić: 2♂♂; Beljanica, EP-69, leg. Vujić: 1♂, 14.VII.1993; Kukavica, EN-74, leg. Radnović: 1♀, 18.VII.1989; leg. Vujić: 6.VI.1989. 1♂; Kopaonik, DN-79, DN-89; DP-80, leg. Vujić: 2♂♂ 3♀♀; Šar-planina, DM-97, leg. Vujić: 4♂♂; Mac: Kožuf, FL-06, leg. Vujić: 1♂, 1♀, 19.VI.1990; Baba, EL-14, leg. Vujić: 1 ♂, 17.VI.1990; Mavrovo, leg. Radenković: 1 ♀, 10.VII.1998; Gre: Pindos mountains, Kastania, leg. Vujić: 1♀, 15.VII.1998. coll. SAR: Cro: leg. Hensch: Krapina BH: leg. Apfelbeck: Romanija, Ivan-planina, Pale, Kijevo; leg. Winnegouth: Sarajevo, Stambulèić, Lukavica, Bijela stijena, Višegrad.

Distribution: Western Palaearctic. BP: Slo (+), Cro, BH, Mtg, Srb, Mac, Blg (?), Gre (+).

Note: *C. solstitialis* is recorded from the whole territory of the Balkans, except for the Mediterranean area. The preferred environments of species are wetland and deciduous forests, alongside woodland streams. Adults prefer the flowers of white Apiaceae.



Figs 8-12: *Chrysogaster* spp., male genitalia, hypandrium: (**a**) lateral view: **x** apicodorsal lobe of aedeagus; (**b**) ventral view: **y** envelope of aedeagus. – **8**: *C. mediterraneus* spec. nov. (Boka Kotorska, Montenegro); – **9**: *C. solstitialis* (Fallén, 1817) (Dubašnica, Serbia); – **10**: *C. basalis* Loew, 1857 (Krapina, Croatia); – **11**: *C. virescens* Loew, 1843 (Niedersachsen, Germany); – **12**: *C. rondanii* Maibach & Goeldlin de Tiefenau, 1995 (Darmstadt, Germany). Scale bar = 0.1 mm.

Lejogaster metallina (Fabricius, 1781)

Chrysogaster macquarti: Langhoffer 1919 (in part)
Chrysogaster metallina: Langhoffer 1919
Lejogaster metallina: Vujić & Glumac 1994
Liogaster metallina: Vujić & Šmić 1994

Material: LD: Cro: Langhoffer 1919 (Karlovac, Petrinja); Srb: Vujić & Glumac 1994 (Fruška gora); Vujić & Šmić 1994 (Vršačke planine). ND: coll. NS: BH: Prenj, YJ-32, leg. Vujić: 1♀, 16.V.1989; MG: Durmitor, CN-47, leg. Milankov, Radenković, Vujić: 14♂♂, 26♀♀; SR: Deliblatska peščara, EQ-16, leg. Šmić: 1♀, 5.VI.1982; Šar-planina, DM-97, leg. Vujić: 1♂, 2♀♀, 19-23.VII.1986. coll. SAR: BH: leg. Apfelbeck: Ilidža; Srb: leg. Hilf: Niš.

Distribution: Palaearctic. BP: Cro, BH, Mtg (+), Srb, Mac (?), Blg (?).

Note: *L. metallina* is a rare species in the Balkan Peninsula, distributed through the northern and central parts, but found at only a few localities at different altitudes (50-1 600 m).

Lejogaster tarsata (Megerle in Meigen, 1822)

Chrysogaster splendida: Langhofffer 1919
Lejogaster splendida: Vujić & Glumac 1994

Material: LD: Cro: Langhoffer 1919 (Kupinovo); Srb: Vujić & Glumac 1994 (Fruška gora). ND: coll. NS: Srb: Deliblatska pešèara, EQ-09, leg. Dragin: 1♀, 18.VII.1997; Malinik, EP-77, leg. P. Radišić: 1♂, 11.VII.1985. coll. SA: Srb: leg. Hilf: Niš.

Distribution: Palaearctic. BP: Cro, Srb, Mac (?), Blg (?).

Note: *L. tarsata* is known from the whole of the Palaearctic region. Its populations in the Balkan Peninsula are small and are rarely found. The species is recorded from the northern parts of the Peninsula, at lower altitudes (plains and hilly areas).

Melanogaster aerosa (Loew, 1843)

(Fig. 19)

Material: ND: coll. NS: Mtg: Durmitor, CN-47, leg. Milankov, Radenković, M. Radišić, P. Radišić, Vujić: 6♂♂, 13♀♀, 24.VI.-14.VII. 1983-1997.

Distribution: Northern, Western and Central Europe (Norway, Sweden, Ireland, Great Britain, Germany, Switzerland, Liechtenstein, BP). BP: Mtg (+).

Note: *M. aerosa* was recently revalidated (Maibach et al. 1994b) together with *M. parumplicata* (Loew, 1840), as cryptic species in the *M. macquarti* (Loew, 1843) complex. The species is primarily northern in distribution, and has a range in Scandinavian countries, Western and Central Europe. The record of *M. aerosa* from the mountain Durmitor in Montenegro is the only one so far from South Europe.

Melanogaster curvistylus Vujić & Stuke, 1998

(Fig. 18)

Material: LD: coll. NS: Srb: Vujić & Stuke 1998 (Srb: Malinik).

Distribution: Central Europe (Germany, BP). BP: Srb.

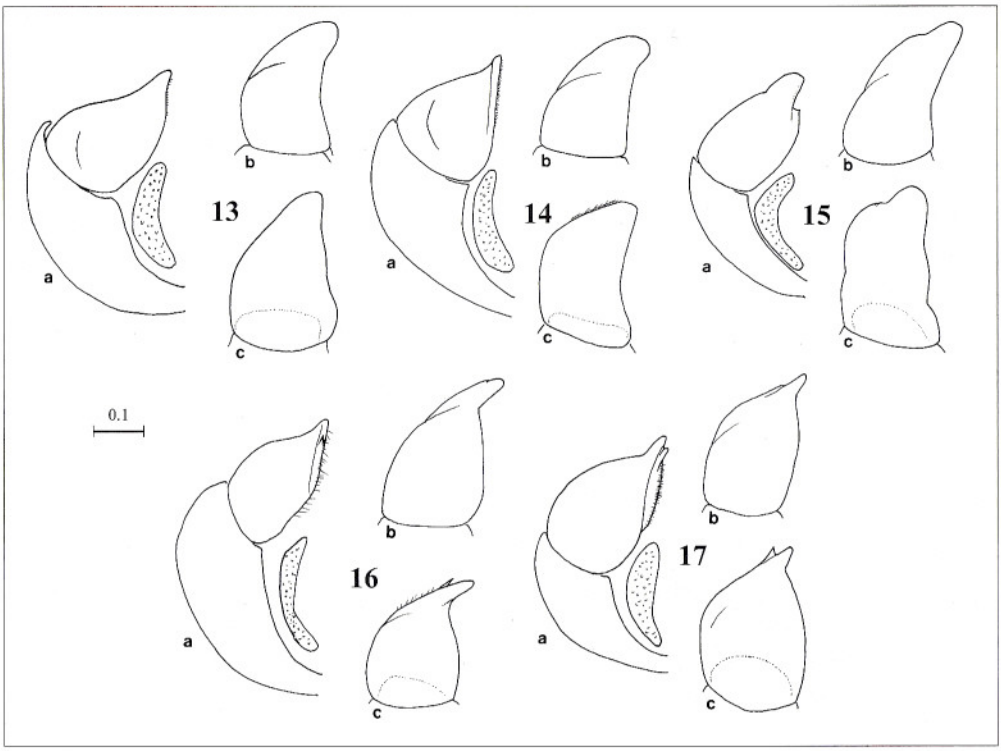
Note: *M. curvistylus* has recently been separated from other related European species of the genus (*M. aerosa*, *M. hirtella* (Loew, 1843) and *M. parumplicata*) on the basis of male genitalia structure (Figs 18-21). The species is very rare, found only at two localities (Germany, Burheim and Eastern Serbia, mountain Malinik).

Melanogaster nuda (Macquart, 1829)

(Fig. 22)

Chrysogaster lucida: Vujić & Glumac 1994, Vujić & Šmić 1994
Chrysogaster macquarti: Glumac 1955a (in part)
Chrysogaster viduata: Langhoffer 1919, Glumac 1955a, 1955b; Šmić 1987, Šmić & Vujić 1987, Vujić & Šmić 1994

Material: LD: Cro: Langhoffer 1919; Glumac 1955b; Mtg: Šmić 1987 (Durmitor); Srb: Glumac 1955a; Šmić & Vujić 1987 (Potisje); Vujić & Glumac 1994 (Fruška gora); Vujić & Šmić 1994 (Vršaèke planine). ND: coll. NS: 129♂♂, 217♀♀: Slo: Julijske Alpe, VM-13, Kamniške in Savinjske Alpe, VM-63, VM-73; Cro: Gorski Kotar, VL-63, Plitvièka jezera, WK-46; BH: Jahorina, CP-04, Konjuh, CQ-00, Prenj, YJ-32; Mtg: Boka Kotorska, CN-00, Durmitor, CN-47, CN-58; Srb: Deliblatska pešèara, DQ-97, EQ-16; Malinik and Dubašnica, EP-77, EP-78; Suva planina, EN-98; Zvonaèka banja, FN-35; Vlašić, CQ-82; Kukavica, EN-74; Vlasinsko jezero, FN-03, FN-04; Kopaonik, DN-89, DN-99, DP-70, DP-80; Stara Planina, FN-29, FN-38, FN-39, FN-48, FN-49, FP-20; Mac: Mavrovo, DM-71; Gre: Pindos, EK-10. coll. SAR: BH: leg. Apfelbeck: Ali Pašin most, Trebinje, Livno, Pale, Ilidža, Ivan-planina, Stambulèić; leg. Winnegouth: Sarajevo.



Figs 13-17: *Chrysogaster* spp., male genitalia: (**a**) left surstylus and cercus, dorsal view; (**b**) right surstylus, lateral view; (**c**) right surstylus, laterodorsal view. – **13**: *C. mediterraneus* spec. nov. (Boka Kotorska, Montenegro); – **14**: *C. solstitialis* (Fallén, 1817) (Dubašnica, Serbia); – **15**: *C. basalis* Loew, 1857 (Krapina, Croatia); – **16**: *C. virescens* Loew, 1843 (Niedersachsen, Germany); – **17**: *C. rondanii* Maibach et Goeldlin de Tiefenau, 1995 (Darmstadt, Germany). Scale bar = 0.1 mm.

Distribution: Western Palaearctic. BP: Slo (+), Cro, BH, Mtg, Srb, Mac, Blg (?), Gre.

Note: *M. nuda* is largely distributed in the Western Palaearctic region, but it rarely appears more to the south. The species is distributed through the whole territory of the Balkan Peninsula, more commonly in the northern and central parts. Adults prefer the flowers of *Ranunculus* spp.

Melanogaster parumplicata (Loew, 1840)

(Fig. 21)

Material: ND: coll. NS: BH: Konjuh, CQ-00, leg. Vujić: 1♂, 13.V.1989; Mtg: Durmitor, CN-47, leg. Vujić: 1♂, 7.VII.1991. coll. SAR: BH: Pale, 1♂.

Distribution: Northern and Central Europe (Sweden, Norway, Germany), BP. BP: BH (+), Mtg (+).

Note: The taxonomic status of *M. parumplicata* has recently been clarified, based on an analysis of the "*macquarti* Loew, 1843" complex (Maibach et al. 1994b). Maibach et al. (1994b) mentioned records of the species in Scandinavia (Sweden, Norway) and Dziock (1998) in Germany. The data from the Balkan mountains (Durmitor, Konjuh and Jahorina) are the first in Southern Europe.

Orthonevra frontalis (Loew, 1843)

(Figs 25, 26)

Orthoneura frontalis: Vujić & Glumac 1994

Material: LD: Srb: Vujić & Glumac 1994 (Fruška gora). ND: coll. NS: BH: Prenj, YJ-32, leg. Vujić: 3♂♂, 2♀♀, 16.V.1989; Srb: Deliblatska pešèara, EQ-16, leg. Šmić: 1♂, 5.VI.1982; Kopaonik, DP-70, leg. Vujić: 1♂, 25.V.1987. coll. SAR: BH: Sarajevo, leg. Winnegouth.

Distribution: Central, Southern and Eastern Europe, Turkey, Iran. BP BH (+), Srb, Blg (?).

Note: The range of *O. frontalis* extends over the greater part of Central and Southern Europe, through Eastern Europe to Central Asia. Populations of species were found at a few localities in southern and central parts of the Balkan Peninsula.

Orthonevra gemmula Violovitsh, 1979

(Figs 27, 28)

Othoneura gemmula: Vujić & Šmić 1994

Material: LD: Srb: Vujić & Šmić 1994 (Vršačke planine)

Distribution: Western Siberia, BP. BP: (Srb).

Note: This species was described from material collected in the region of Novosibirsk, Western Siberia. *O. gemmula* does not seem to have been recorded since its original description, except for a single record from the low Vršačke planine mountain in the Pannonian plain (Vujić & Šmić 1994).

Orthonevra montana spec. nov.

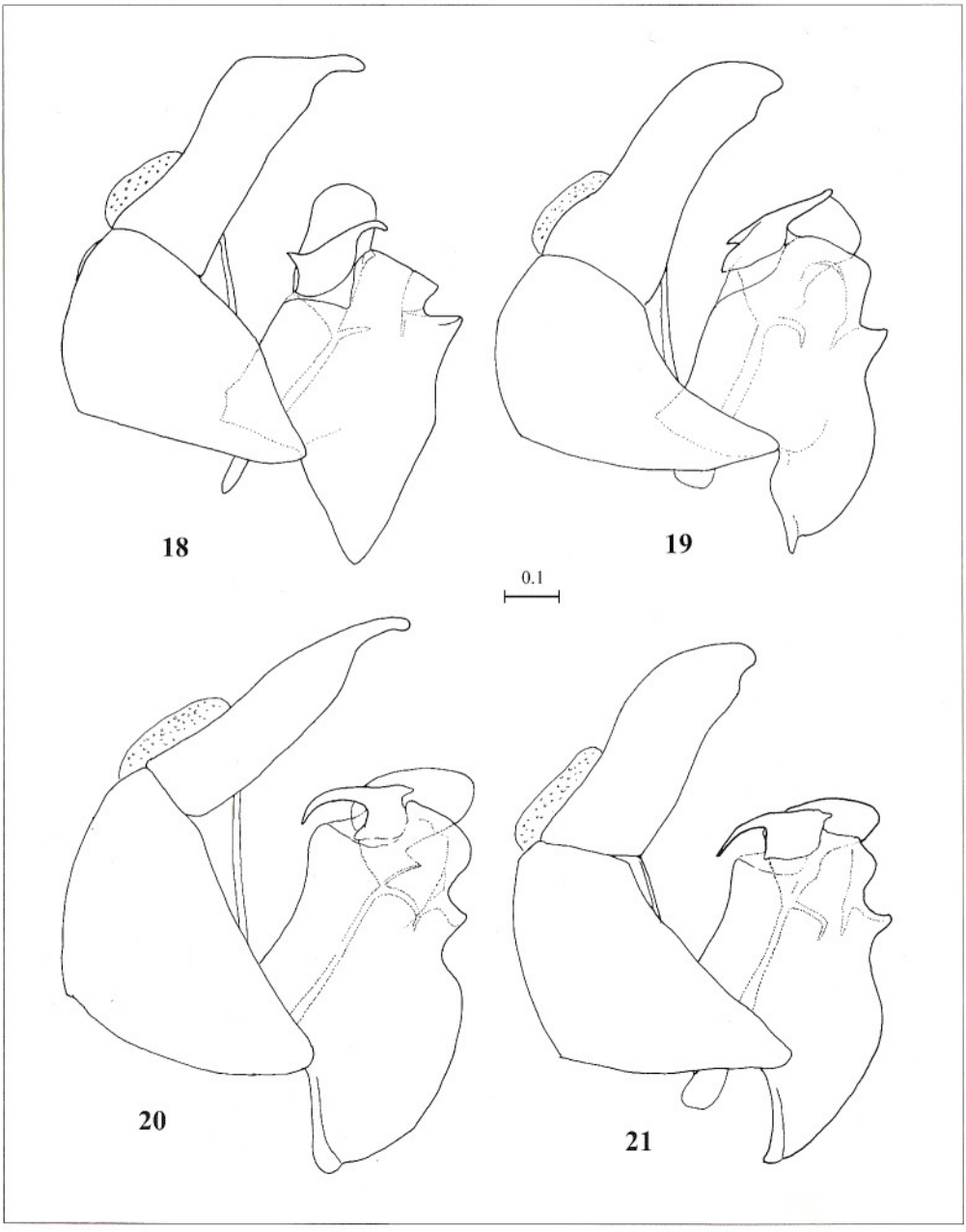
(Figs 29-33, 34-37)

Material: Holotype: ♂ (BEO, coll. 595773, Inv. No. 34); Srb: Kopaonik, Karamanski potok, DN-89, 18.VI.1996. leg. Vujić. Paratypes: BH: Jahorina, CP-04, leg. Vujić: 1♂, 14.V.1989; Mtg: Durmitor, CN-47, leg. Vujić: 1♀, 27.VI.1993; Srb: Kopaonik, DN-89, leg. Tanurdžić, Šmić, Vujić: 64♂♂, 23 ♀♀ (♀ allotype, BEO, coll. 595773, Inv. No. 35); Stara Planina, FN-49, leg. Vujić: 1♀, 26.VI.1987; Šar-planina, EM-06, DM-96, leg. Vujić: 9♂♂; Mac: Šar-planina, DM-85, leg. Vujić: 1♀, 27.VII.1988; Gre: Verno, EL-21, leg. Vujić: 1♂, 1♀, 11.V.1990.

Diagnosis: The species belongs to the *nobilis* group sensu Maibach et al. 1994a, and is closely related to *O. tristis* (Loew, 1871): antennae (Figs 32, 33) dark; flagellomere short (length in relation to width = 1.2-1.3); legs black; upper marginal cross-vein M1 meeting the longitudinal vein R_{4+5} at a right angle (Fig. 31). The two species differ in the male genitalia structure: apicodorsal lobe of aedeagus in lateral view shorter, hook-like (Fig. 36: x), in *O. tristis* much longer and like a bird's head (Fig. 38: x); superior lobe (Fig. 36: y) short and broad (length in relation to width = 1.2), in *O. tristis* (Fig. 38: y) much longer (length in relation to width = 0.75); other differences: eye-meeting in male slightly longer than height of ocellar triangle, in *O. tristis* of same length or shorter; hairs on face, lateral sides of tergites and sternites shorter and more adpressed than in *O. tristis*; hairs on central disc of mesoscutum predominantly black, in *O. tristis* more pale hairs on anterior and posterior parts of central disc. All these differences, except the male genitalia, are very slight and are not always obvious, which makes female identification uncertain. These two species have not yet been found sympatrically. *O. montana* has a range in the high Balkan mountains, and *O. tristis* in the Alps.

Description

Male. Body entirely dark, distinctly metallic-green shining. **Head** (Fig. 29): Eyes bare, holoptic; length of eye-meeting slightly longer than height of ocellar triangle. Frons and



Figs 18-21: *Melanogaster* spp., male genitalia, lateral view. – **18**: *M. curvistylus* Vujić & Stuke, 1998 (Malinik, Serbia); – **19**: *M. aerosa* (Loew, 1843) (Durmitor, Montenegro); – **20**: *M. hirtella* (Loew, 1843) (Schleswig-Holstein, Germany); – **21**: *M. parumplicata* (Loew, 1840) (Durmitor, Montenegro). Scale bar = 0.1 mm.

face black, shining, except for a band of white dusting below the antennae reaching laterally to the eye margins, covered with sparse whitish hairs. Occiput with black hairs. The ocelli are equidistant. Antennae dark, the flagellomere short, oval (length in relation to width = 1.2).
Thorax: black; integument with fine and dense puncturation. Mesoscutum covered with

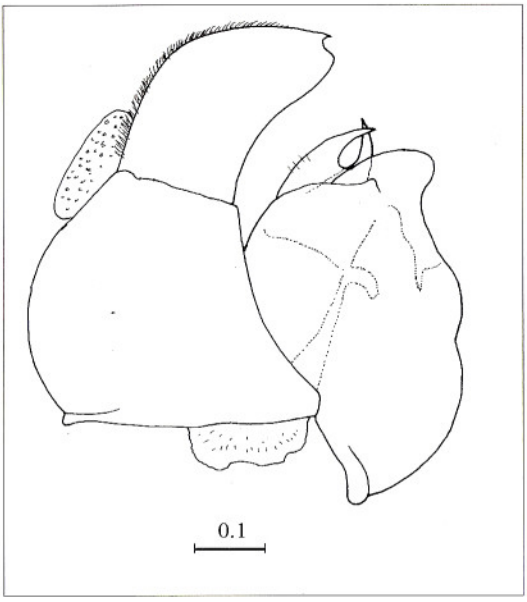


Fig. 22: *Melanogaster nuda* (Macquart, 1829), male genitalia, lateral view. Scale bar = 0.1 mm.

short hairs, predominantly black on central disc, whitish and yellowish on lateral sides. Pleurites shining, covered with short pale hairs. **Legs** entirely black. **Wings** slightly brownish; upper marginal cross-vein M1 with central curve, and meeting the longitudinal vein R_{4+5} at a right angle (Fig. 31). Calypters whitish with yellowish edge; halteres yellowish. **Abdomen**: oval; central disc (central areas of tergites 1-4) dull and dusted; lateral margin shining. Hairs on tergites very short and adpressed on central disc, pale and longer along lateral sides, mostly erect on tergites 1-2, semiadpressed and adpressed towards tip of abdomen. Sternites shining, covered with whitish hairs, hairs erect on sternites 1-2. **Genitalia**: (Figs 34-37): apicodorsal lobe of aedeagus in lateral view short, hook-like (Fig. 36: x); superior lobe (Fig. 36: y) short and broad (length in relation to width = 1,2).

Female (Figs 30, 33): Resembling male, except normal sexual dimorphism and the following: eyes dichoptic; head pilosity whitish with few black hairs on the vertex; frons with 7-8 lateral furrows; wings more transparent; abdomen larger.
Body length: 4.5-7.3 mm.

Etymology: The name is derived from Latin adjective "*montanus*". The name indicates the preferred habitat of the species.

Distribution: high Balkan mountains. BP: BH (+), Mtg (+), Srb (+), Mac (+), Gre (+).

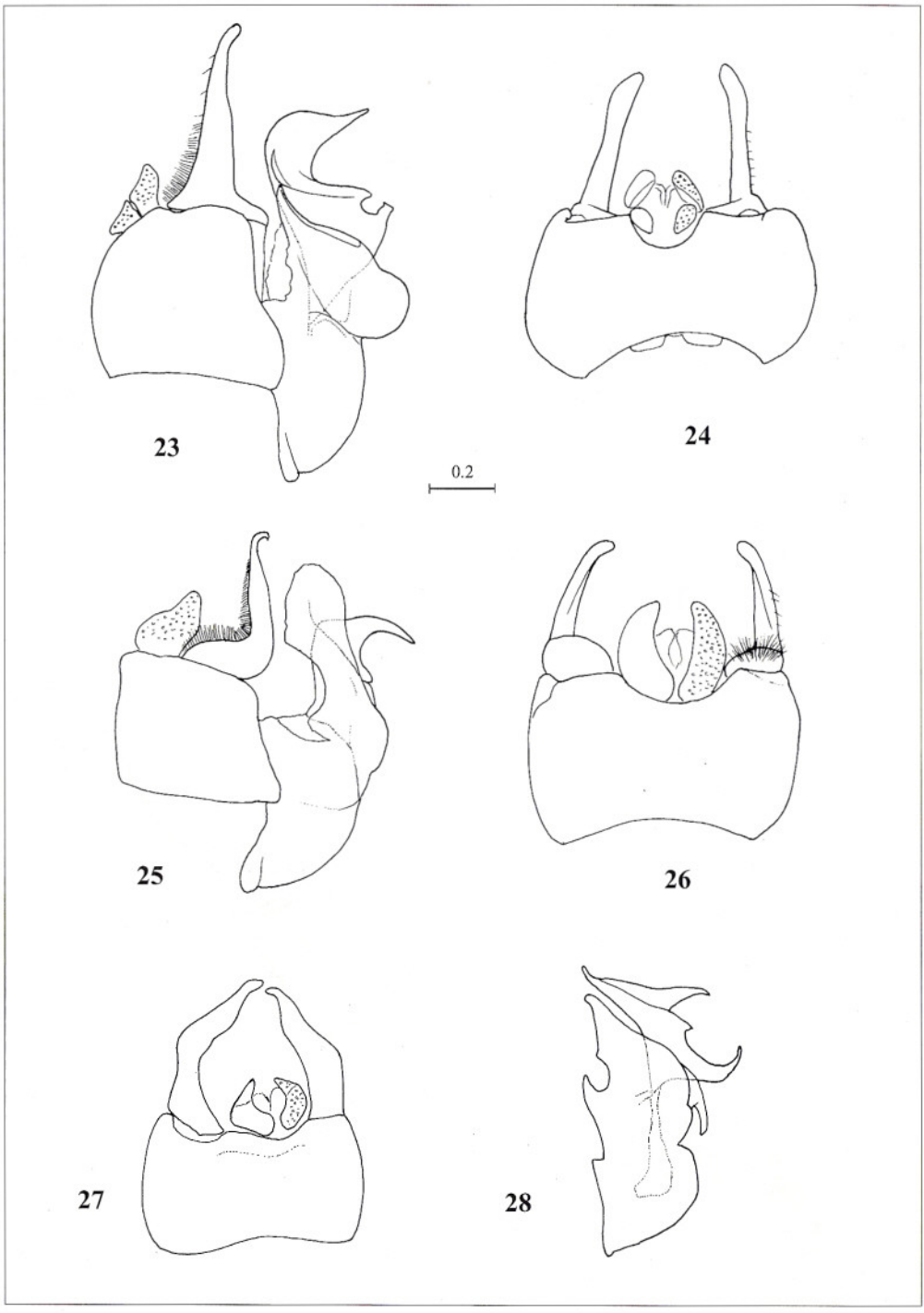
Note: The species is closely related to *O. tristis* from the Alps and Pyrenees. The population of *O. montana* is widespread in the Balkan Peninsula and occurs at altitudes higher than 1 000 m. Adults appear in habitats beside streams and wetlands, visiting the flowers of *Ranunculus* spp. and white Apiaceae.

Orthonevra nobilis (Fallén, 1817)

(Figs 23, 24)

Chrysogaster frontalis: Langhoffer 1919
Chrysogaster nobilis: Langhoffer 1919
Orthoneura nobilis: Vujić & Glumac 1994
Orthonevra nobilis: Vujić 1995

Material: LD: Cro: Langhoffer 1919 (Vratnik, Zagreb, Daruvar, Krapina); Srb: Vujić & Glumac 1994 (Fruška gora); Mac: Vujić 1995 (Mavrovo). ND: coll. NS: Slo: Julijske Alpe (Vršič, VM-04, leg. Vujić: 1♂, 23.V.1989; Soča, UM-94 leg. Vujić: 1♂, 1♀, 18.VI.1988.); BH: Konjuh, CQ-00, leg. Vujić: 6♂♂, 2♀♀; Mtg: Durmitor, CN-47, leg. Vujić: 4♂♂, 1♀; leg. Radnović: 3♂♂, 1♀, 23.VIII.1994; Srb: Dubašnica and Malinik, EP-77, EP-78, leg. Milankov, P. Radišić, Vujić: 6♂♂, 2♀♀; Bosilegrad, FN-20, leg. Vujić: 1♀, 14.VII.1989; Kopaonik, DP-70, DN-89, leg. Vujić: 2♀♀; Šar-planina, DM-97, leg. Vujić: 5♂♂, 1♀, 19.VII.1986; leg. Milankov: 1♂, 6.VIII.1991; Mac: Baba, EL-14, leg. Vujić: 3♂♂, 1♀; Kožuf, FL-06, leg. Vujić: 1♀, 13.VII.1990. coll. SAR: Cro: leg. Hensch: Krapina; BH: leg. Apfelbeck: Ali Pašin most, Mokro, Ilidža; leg. Winnegouth: Pale.



Figs 23-28: *Orthonevra* spp., male genitalia. – **23, 25**: lateral view; – **24, 26, 27**: epandrium, dorsal view; – **28**: hypandrium, lateral view. – **23, 24**: *O. nobilis* (FALLÉN, 1817) (Durmitor, Montenegro); – **25, 26**: *O. frontalis* (LOEW, 1843) (Prenj, Bosnia-Herzegovina); – **27, 28**: *O. gemmula* VIOLOVITSH, 1979 (Vršac, Serbia). Scale bar = 0.2 mm.

Distribution: Palaearctic. BP: Slo (+), Cro, BH, Mtg (+), Srb, Mac (+), Blg (?).

Note: This species occurs throughout the Palaearctic region, and is the most widespread species of genus *Orthonevra* in the Balkan Peninsula.

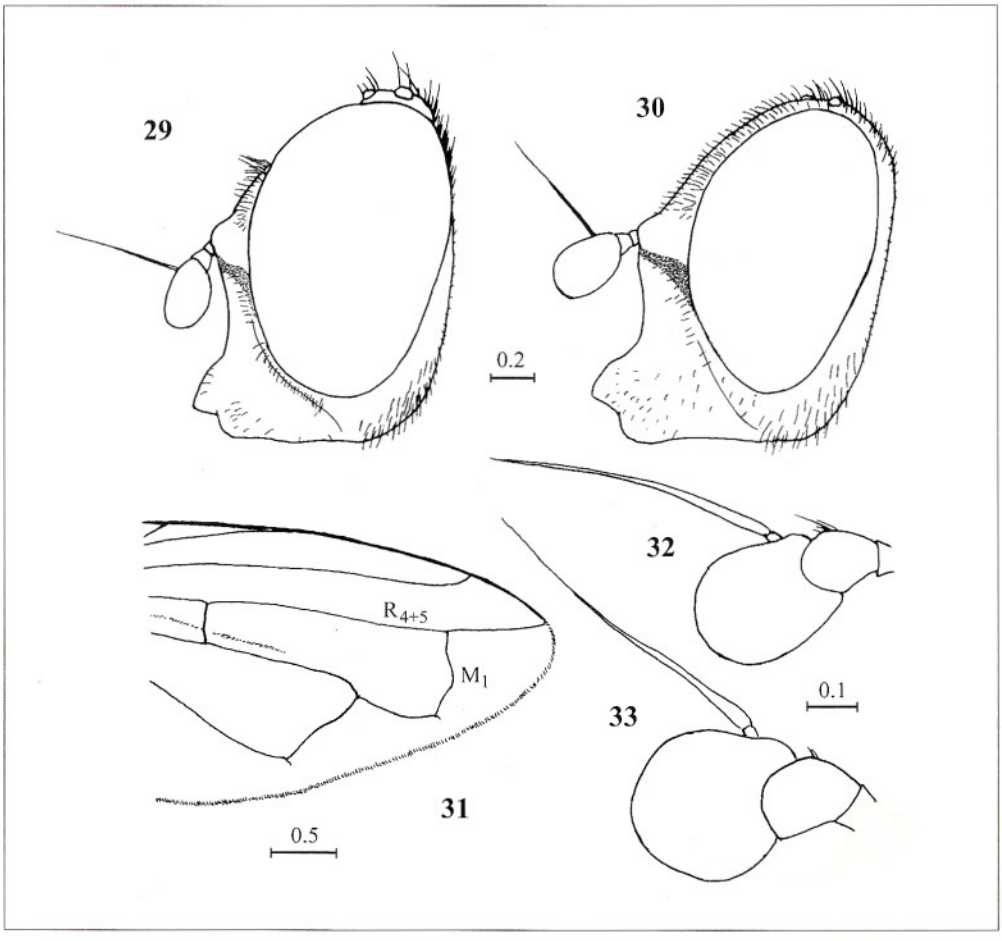
Riponnensia morini spec. nov.

(Figs 39-44, 46-48)

Chrysogaster splendens: GLUMAC 1955a

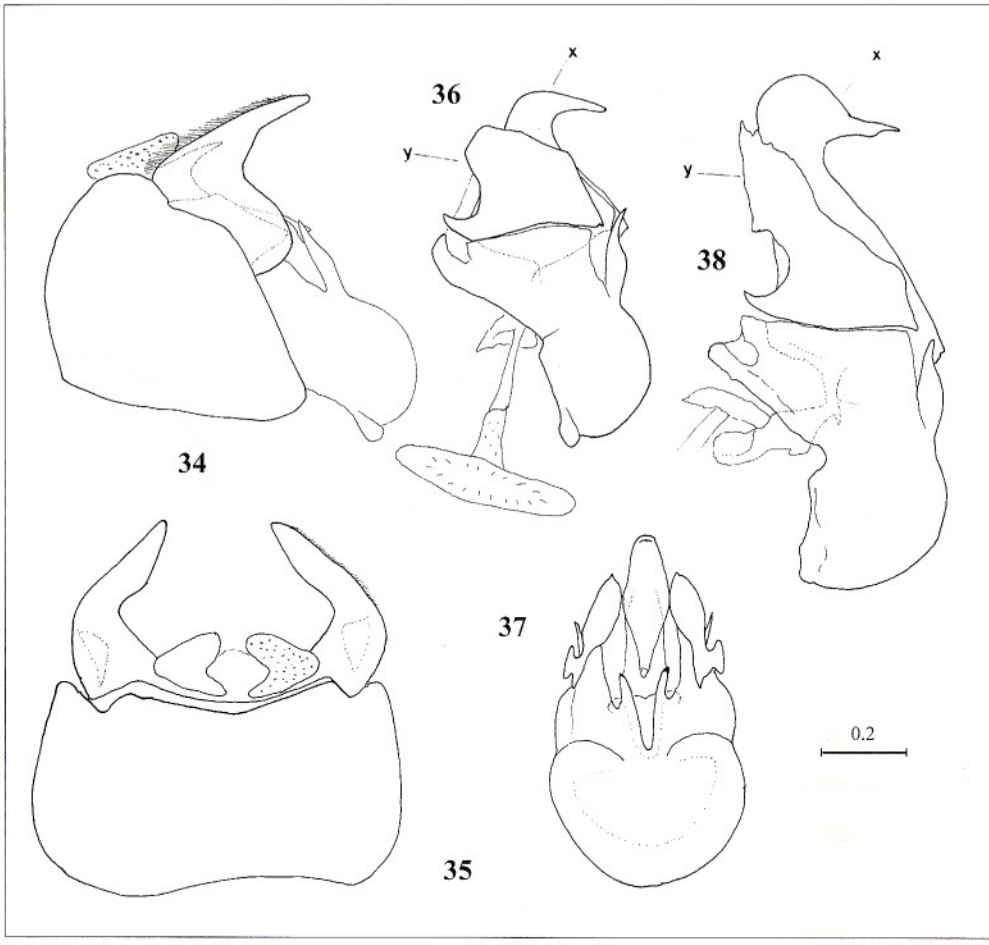
Material: Holotype: ♂ (BEO, coll. 595773, Inv. No. 36); Mtg: Boka Kotorska, Morinj, CN-00, 7.V.1994. leg. VUJIĆ. Paratypes: Mtg: Boka Kotorska, Morinj, CN-00, leg. VUJIĆ: 1♂, 5.V.1991; leg. P. RADIŠIĆ: 1♂, 7.V.1994; Nerodimlje, 1♀ (allotype, BEO: coll. GLUMAC), V.1907, leg. STOJIČEVIĆ.

Diagnosis: The species is closely related to *R. splendens* (MEIGEN, 1822) and *R. daccordii* (CLAUSSEN, 1991). Differential morphological features of the three species are: - in *R. splendens* the band of dusting below the antennae silver-whitish, with more or less parallel upper and



Figs 29-33: *Orthonevra montana* spec. nov. (Kopaonik, Serbia). – **29**: head of male, lateral view; – **30**: head of female, lateral view. Scale bar = 0.2 mm; – **31**: top of right wing: M_1, R_{4+5} - veins. Scale bar = 0.5 mm; – **32**: right antenna of male, internal view; – **33**: right antenna of female, internal view. Scale bar = 0.1 mm.

lower sides in anterior view (Fig. 45); in *R. morini* and *R. daccordii* lower part of dusted band with a pair of lateral undusted or less dusted areas (Fig. 44); - hairs on male mesoscutum: short in *R. splendens* (1-1.5 times longer than diameter of ocellus); longer in *R. morini* (1.5-2 times longer than diameter of ocellus) (Fig. 42); the longest in *R. daccordii* (2-2.5 times longer than diameter of ocellus) - genitalia: superior lobe asymmetric and branched in *R. morini* and *R. daccordii* (Fig. 46: x, 48: x), symmetric in *R. splendens* (Fig. 49: x); superior lobe with two branches in *R. morini* and three in *R. daccordii* (CLAUSSEN, 1991: figs 2, 3); surstyli in *R. morini* (Fig. 47) without thorn-like apex, present in *R. daccordii* (CLAUSSEN, 1991: fig. 1); - female: frons slightly narrower in *R. splendens* (head width in relation to face width at the level under the antennae = 2.4-2.6), in *R. morini* and *R. daccordii* (2.2-2.3); width of sternite 4 at the level of posterior margin in relation to length of sternite 4 = 2.0 in *R. daccordii*, and 2.5-3.0 in *R. morini* and *R. splendens*; hairs of mesoscutum in *R. splendens* very short, in *R. morini* 1.5 times longer and in *R. daccordii* 2-3 times longer.



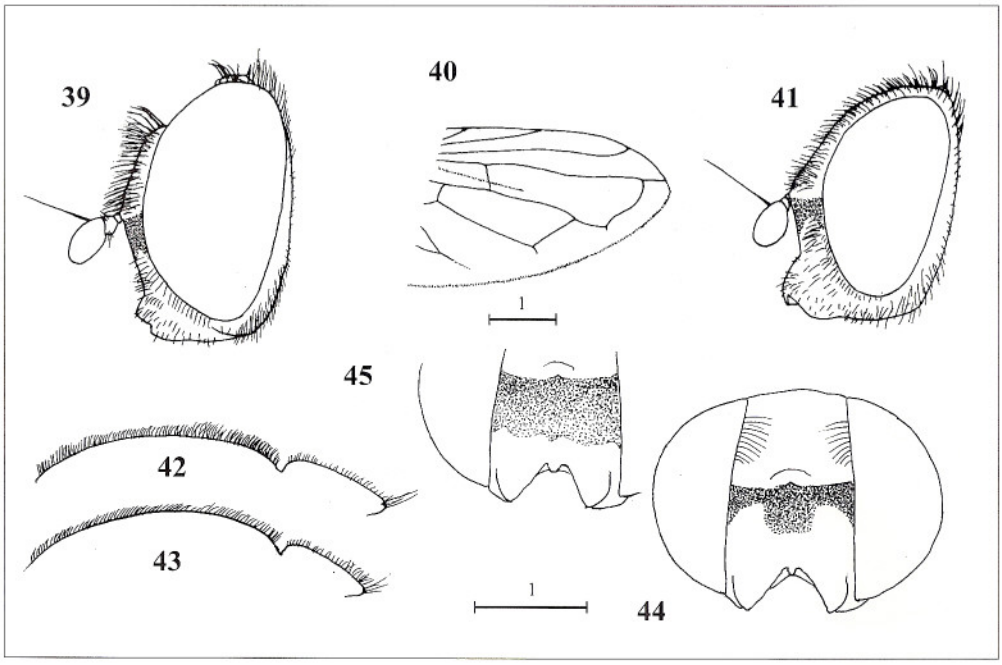
Figs 34-38: *Orthonevra* spp., male genitalia. – **34-37**: *O. montana* spec. nov. (Kopaonik, Serbia); – **38**: *O. tristis* (LOEW, 1871) (Hohe Tauern, Austria). – **34**: lateral view; – **35**: epandrium, dorsal view; – **36, 38**: hypandrium, lateral view (**x** apicodorsal lobe of aedeagus; **y** superior lobe); – **37**: hypandrium, ventral view. Scale bar = 0.2 mm.

Description

Male. Entirely dark species, with very distinct green-bronze-metallic shine. **Head** (Fig. 39): Eyes holoptic, bare; length of eye-meeting longer than height of ocellar triangle. Face black-green shining, without facial tubercle; band of silver-greyish dusting below antennae reaching laterally to eye margins, in lower part not reaching protruding mouth margins (Fig. 44); face covered with whitish hairs. Frons flat, covered with whitish hairs except for a few black hairs in upper corner. Ocelli equidistant; ocellar region with black hairs. Occiput covered with whitish hairs. Antennae: flagellomere reddish-orange with brownish upper margin, oval (length in relation to width = 1.5).

Thorax: black, green-bronze-metallic (Fig. 42). Integument with fine puncturation; mesoscutum with four golden-mat longitudinal bands; hairs on mesoscutum grey-reddish, erect. Scutellum covered with short yellowish hairs and several longer marginal hairs. Pleurites shining, covered with whitish hairs, slightly grey dusted on hairy parts. **Legs** entirely black, pale haired. **Wings** (Fig. 40) transparent, slightly yellowish. Calypters grey-yellowish with darker margins. Halteres yellowish.

Abdomen: oval, elongated, lateral margins almost parallel. Tergites: central disc dark, dull and dusted; lateral sides of tergites 1-4 and posterior margin of tergite 4 green-metallic shining; hairs on central disc short and adpressed; along lateral sides of tergites pilosity pale, longer and erect. Sternites shining, covered with whitish hairs. **Genitalia** (Figs 46-48): Surstyli (Fig. 47) elongated, with long internal lobe; superior lobe asymmetric and branched (Figs 46: x, 48: x).



Figs 39-45: *Riponnensia* spp. – **39-44**: *R. morini* spec. nov. (Boka Kotorska, Montenegro); – **45**: *R. splendens* (Meigen, 1822) (Orehovica, Croatia). – **39**: head of male, lateral view; – **40**: top of right wing; – **41**: head of female, lateral view; – **42**: pilosity on mesoscutum of male, lateral view; – **43**: pilosity on mesoscutum of female, lateral view; – **44, 45**: head of female, anterior view. Scale bar = 1 mm.

Female (Figs 43, 44). Resembling male, except for normal sexual dimorphism: eyes dichoptic; body hairs shorter; frons with lateral furrows; mesoscutum with denser puncturation, covered with shorter whitish hairs.
Body length: 7.8-8.2 mm

Etymology: The specific epithet is derived from the name of the type-locality Morin. A noun in the genitive case.

Distribution: probably Balkan endemic species. BP: Mtg (+), Srb (+).

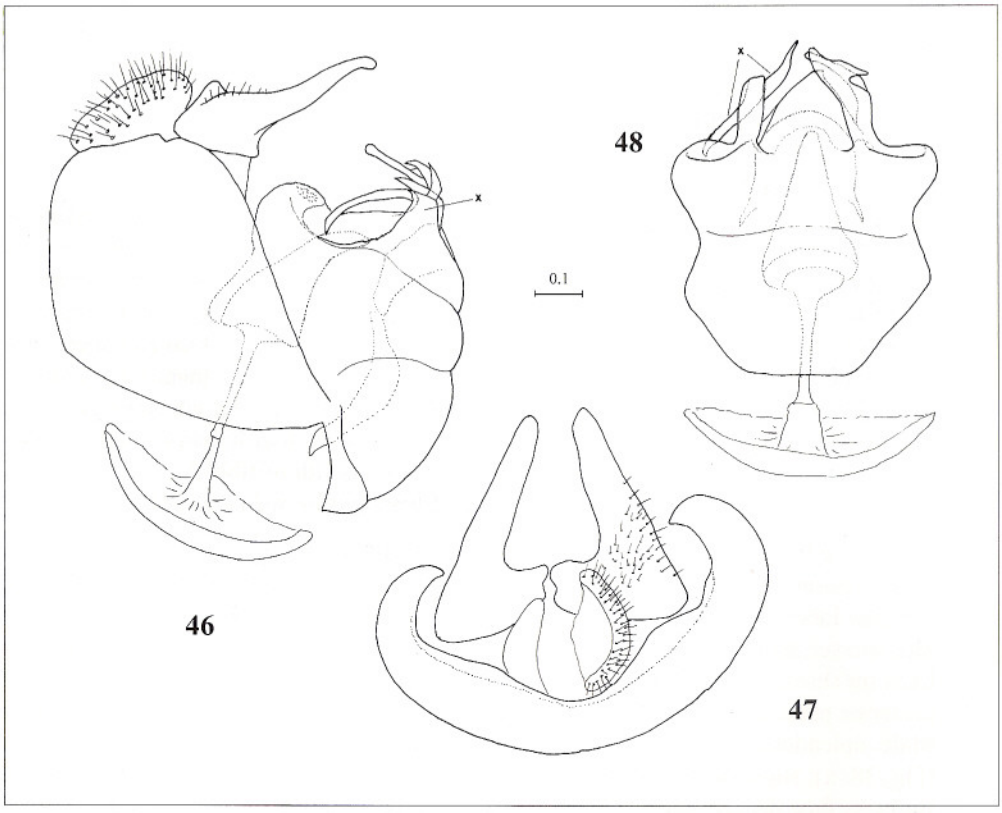
Note: The species is closely related to *R. daccordii*, an endemic species from Corsica. *R. morini* was found in Mediterranean and Submediterranean areas of the Balkan Peninsula. It is probably a species endemic to this part of Europe.

Riponnensia splendens (Meigen, 1822)

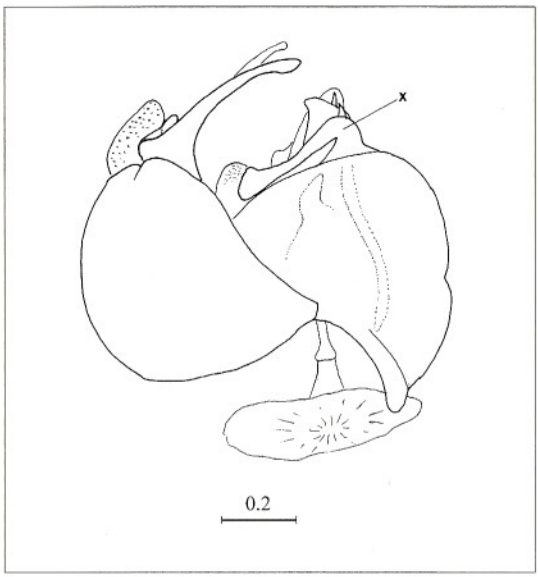
(Figs 45, 49)

Chrysogaster splendens: Langhoffer 1919; Vujić & Šmić 1994
Orthoneura splendens: Vujić & Glumac 1994

Material: LD: Cro: Langhoffer 1919 (Orehovica, Zagreb, Pregrada); Srb: Vujić & Glumac 1994 (Fruška gora); Vujić & Šmić 1994 (Vršačke planine). ND: coll. SAR: Cro: leg. Hensch: Krapina.



Figs 46-48: *Riponnensia morini* spec. nov. (Boka Kotorska, Montenegro), male genitalia (**x** superior lobe). – **46**: lateral view; – **47**: epandrium, dorsal view; – **48**: hypandrium, lateral view. Scale bar = 0.1 mm.



Distribution: Central and Southern Europe, Mediterranean basin. BP: Cro, Srb, Blg (?).

Note: There are only a few records of *R. splendens* in the Balkan Peninsula. It occurs in the low mountains of the Pannonian plain, in Subpannonian hilly areas, and at low altitudes of some Dinaric mountains.

Fig. 49: *Riponnensia splendens* (MEIGEN, 1822) (Fruška gora, Serbia), male genitalia, lateral view (**x** superior lobe). Scale bar = 0.2 mm.

Discussion

Published keys for the identification of the adults of species belonging to the genera of the tribe Chrysogasterini need to be modified with the following couplets:

for "*Chrysogaster solstitialis*" (in SPEIGHT 1980, STACKELBERG 1959):

- Male: central disc of mesoscutum dull anteriorly, in posterior third shining, hairs on mesoscutum shorter; hypandrium with oval apicodorsal lobe of aedeagus (Fig. 8a: x), aedeagal envelope as in fig. 8b: y. - female: central disc of mesoscutum matt in posterior fourth; hairs on laterodorsal surface of femur 2 of the same length or shorter than width of tibia 2 ..... ***Chrysogaster mediterraneus* spec. nov.**
- Male: central disc of mesoscutum entirely dull, hairs on mesoscutum longer; hypandrium with elongated apicodorsal lobe of aedeagus (Fig. 9a: x), aedeagal envelope as in fig. 9b: y. - female: central disc of mesoscutum matt in posterior fourth; hairs on laterodorsal surface of femur 2 of the same length or longer then width of tibia 2. ..... ***Chrysogaster solstitialis* (FALLÉN, 1817)**

for "*Orthoneura tristis*" (in STACKELBERG 1953) (the separation of females is still uncertain):

- Male: apicodorsal lobe of aedeagus in lateral view shorter, hook-like (Fig. 36: x); superior lobe (Fig. 36: y) short and broad (length in relation to width = 1.2). Hairs on face sparser; hairs on lateral sides of tergites and on sternites shorter and very adpressed; hairs on central disc of mesoscutum predominantly black, except extreme anterior and posterior parts covered with pale hairs ..... ***Orthonevra montana* spec. nov.**
- Male: apicodorsal lobe of aedeagus in lateral view much longer and bird-like in shape (Fig. 38: x); superior lobe (Fig. 38: y) much longer (length in relation to width = 0.75). Hairs on face denser; hairs on lateral sides of tergites and on sternites longer and very erect; anterior and posterior part of central disc of mesoscutum with more pale hairs. ..... ***Orthonevra tristis* (LOEW, 1871)**

for "*Orthoneura splendens*" (in STACKELBERG 1953):

- Band of dusting below antennae broad, with more or less parallel upper and lower sides in anterior view (Fig. 45); hairs on mesoscutum short, 1-1.5 times longer than diameter of ocellus; - male genitalia: superior lobe symmetric (Fig. 49: x); - female: frons narrower (head width in relation to face width at level under the antennae = 2.4 -2.6). ... ***Riponnensia splendens* (MEIGEN, 1822)**
- Band of dusting below antennae narrower, in lower part with a pair of undusted or less dusted areas (Fig. 44); hairs on mesoscutum long, 1,5-2,5 times longer than diameter of ocellus; - male genitalia: superior lobe asymmetric and branched (Figs 46: x, 48: x); - female: frons broader (head width in relation to face width at level under the antennae = 2.2-2.3) **2**

2. Hairs on mesoscutum shorter (1.5-2 times longer than diameter of ocellus); - male genitalia: surstyli without thorn-like apex (Fig. 47), superior lobe with two branches (Figs 46: x, 48: x) - female: width of sternite 4 at level of posterior margin in relation to length of sternite 4 = 3.0 ..... ***Riponnensia morini* spec. nov.**
- Hairs on mesoscutum longer (2-3 times longer than diameter of ocellus); - male genitalia: surstyli with thorn-like apex (CLAUSSEN 1991: fig. 1); superior lobe with three branches (CLAUSSEN 1991, figs 2, 3) - female: width of sternite 4 at level of posterior margin in relation to length of sternite 4 = 2.0. ..... ***Riponnensia daccordi* (CLAUSSEN, 1991)**

Collections

The names and species excluded from the fauna of the Balkan Peninsula based on an analysis of published collections (redeterminations) are presented below:

LANGHOFFER 1919: *Chrysogaster chalybeata* = *C. basalis*; *Chrysogaster macquarti* = *C. solstitialis* and *Lejogaster metallina; Chrysogaster frontalis* = *Orthonevra nobilis.*

GLUMAC 1955a: *Chrysogaster macquarti* = *C. basalis* and *Melanogaster nuda.*

GLUMAC 1955b: *Liogaster splendida* = *Lejota ruficornis* (ZETTERSTEDT, 1843).

GLUMAC 1959: *Chrysogaster brevicornis* = *Riponnensia splendens.*

A number of published collections (STROBL 1900, DRENSKY 1934, COE 1956, BAŃKOWSKA 1967, GLUMAC 1968) have not been revised and they contain the names of species that may potentially exist in the Balkan Peninsula: *Chrysogaster cemiteriorum* (under syn. *chalybeata*) (in: STROBL 1900, DRENSKY 1934, GLUMAC 1968); *Orthonevra brevicornis* (LOEW, 1843) (in: COE 1956, BAŃKOWSKA 1967, GLUMAC 1968); *O. elegans* (WIEDEMANN in MEIGEN, 1822) (in DRENSKY 1934); *O. fumipennis* (LOEW, 1843) (in DRENSKY 1934); *O. geniculata* (MEIGEN, 1830) (in DRENSKY 1934); *O. plumbago* (LOEW, 1840) (in BAŃKOWSKA 1967); *Riponnensia longicornis* (LOEW, 1843) (in: DRENSKY 1934, BAŃKOWSKA 1967).

Distribution and zoogeographical characteristics

The following list shows the different range-types among the species known with certainly from the Balkan Peninsula:

Range-type	Number of species
Palaearctic	5
Central and Southern Europe	3
Northern and Central Europe	3
Endemic and relicts (?)	4

The most numerous group was the Palaearctic species, with five confirmed representatives. The records of species with a northern distribution and very little data from Southern Europe (three species: *Melanogaster aerosa*, *M. curvistylus* and *M. parumplicata*) were of special importance. Among 15 recorded species, a significant number (three species) was found only on the Balkan Peninsula: *Chrysogaster mediterraneus*, *Orthonevra montana* and *Riponnensia morini*. At the moment, these species can be characterized as endemic or relicts. This group contains one additional species, *Orthonevra gemmula,* described from Western Siberia, unknown in other parts of Europe.

Five species have been recorded from the Balkan Peninsula for the first time (*Chrysogaster mediterraneus*, *Melanogaster aerosa*, *M. parumplicata*, *Orthonevra montana* and *Riponnensia morini*). The diversity of Chrysogasterini species over the Balkan states can be seen in the table.

Table: Diversity of flies of the Tribe Chrysogasterini in the Balkan states

Balkan state	Number of species	First record
Slovenia	3	for 3 species
Croatia	7	for 1 species
Bosnia-Herzegovina	8	for 4 species
Montenegro	9	for 7 species
Serbia	12	for 3 species
FRY Macedonia	8	for 3 species
Bulgaria	7	-
Greece	4	for 3 species

The number of species is somewhat lower in Slovenia (3 species), Greece (4 species) and Albania (no data) because there have been fewer investigations. An approximately equal number of species is present in the majority of Balkan states (7-9). Among the Balkan countries, it can be seen that the fauna in Serbia is the most numerous, with 12 confirmed species. Apart from the fact that the fauna of hoverflies in this country has been the subject of systematic investigations over several years, this number demonstrates the great diversity of habitats, ecosystems and relict communities in this area.

Acknowledgements

My sincere gratitude is due to following Museums for permission to study specimens from the collections in their care: Natural History Museum, Belgrade (Yugoslavia), Bosnia and Herzegovina Museum, Sarajevo (Bosnia-Herzegovina), Croatian Museum of Natural History, Zagreb (Croatia). I am indebted to my colleagues Dr Slobodan Glumac, Dr SmiljkaŠimić, Mr Predrag Radišić, Miss Vesna Milankov, Miss Snežana Radenković, Mr Dragan Radnović, Mrs Dragana Radović, Mrs Marija Radišić, Mrs Sanja Radnović, Miss Dragana Dević and Mrs Svetlana Dragin (Novi Sad, Yugoslavia) for their material collected all over the Balkan Peninsula.

I wish to express my gratitude to Dr Goeldlin de Tiefenau and Dr Alan Maibach (Switzerland) for detailed comments and information about Chrysogasterini species. Special thanks go to Dr Jens-Hermann Stuke (Bremen, Germany) for successful cooperation, valuable information and helpful material from his collection. I also thank Dr Adrian C. Pont for checking the English language of this paper.

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The paper was accepted for publishing on 10 September 1999.
Editum: 29 December 1999.

Tagungsankündigung

Einladung zur Tagung des Arbeitskreises Diptera vom 16. bis 18. Juni 2000 in Leck (Nordfriesland)

Die nächste Tagung des Arbeitskreises „Diptera“ wird in der Zeit vom 16. bis 18. Juni 2000 an der Nordsee durchgeführt. Herr Dr. Claus-Joachim Otto hat als Tagungsstätte die Heimvolkshochschule Leck (nahe der dänischen Grenze, ca. 40 km westlich Flensburg) binden können. Der Ort liegt direkt an der B 119 und ist etwa 20 km von der Küste entfernt.

Voraussichtlicher Ablauf der Tagung:

16.06.2000:	15.00 Uhr Begrüßung und anschließend Vorträge Nach dem gemeinsamen Abendbrot Diskussionen zu Problemen und Vorhaben der Arbeitsgruppe. Dabei sind selbstverständlich auch Angebote für die Tagung im Jahre 2001 erwünscht.
17.06.2000:	Exkursionen
18.06.2000:	gemeinsames Frühstück; Abreise

In der Heimvolkshochschule stehen 46 Betten (10 EZ und 18 DZ) zur Verfügung. Wenn diese nicht ausreichen, können noch weitere Übernachtungsmöglichkeiten außerhalb des Hauses bereitgestellt werden. Die Kosten stehen noch nicht ganz fest. Für zwei Übernachtungen und Vollverpflegung werden sie etwa 160,00 DM betragen. Der Einzelzimmerzuschlag beträgt etwa 15,00 DM pro Nacht.

Es werden mehrere Exkursionen vorbereitet, darunter auch eine Wattenmeer-Exkursion (gegen ein geringes Entgelt). Für deren Anmeldung ist eine Angabe der Teilnehmerzahl erforderlich. Bitte füllen Sie also bei Interesse das entsprechende Feld in der Anmeldung aus.

Jeder an dipterologischen Themen interessierte ist zur Teilnahme herzlich eingeladen. Vorträge zu allen dipterologischen Themen sind willkommen. Die Vortragsdauer sollte 15 min. nicht überschreiten, damit ausreichend Zeit für die Diskussionen bleibt. Es wird wieder möglich sein, eine ca. halbseitige Kurzfassung des Vortrages in den DGaaE-Nachrichten zu veröffentlichen.

Im Interesse einer guten Vorbereitung der Tagung ist es erforderlich, dass sich Interessenten verbindlich bis zum 15.01.2000 anmelden. Ein Anmeldeformular kann bei dem Leiter des AK, Herrn Rainer Samietz, Brunnenstraße 47, D-99867 Gotha angefordert werden (Tel.: dienstl. 03621/823011; privat: 03621/750427; Fax: 03621/823020; e-mail: RUHF.SAMIETZ-Gotha@t-online.de).

Nach der Anmeldung erhalten Sie im Mai weitere Informationen sowie das Vortragsprogramm.

Dr. Claus-Joachim Otto als Organisator der Tagung
Rainer Samietz als Leiter des Arbeitskreises