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Objekttyp: **Article**

Zeitschrift: **Mitteilungen der Schweizerischen Entomologischen Gesellschaft = Bulletin de la Société Entomologique Suisse = Journal of the Swiss Entomological Society**

Band (Jahr): **86 (2013)**

Heft 3-4

MITTEILUNGEN DER SCHWEIZERISCHEN ENTOMOLOGISCHEN GESELLSCHAFT
BULLETIN DE LA SOCIÉTÉ ENTOMOLOGIQUE SUISSE
86: 199–242, 2013

A revision of the West Palaearctic species of *Colobostema* Enderlein, 1926 (Diptera, Scatopsidae). Part I. European subregion

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In this first contribution to the study of the genus *Colobostema* the European taxa are revised (except those restricted to the Mediterranean subregion), mainly based upon the study of the genitalia and pregenital segment. The occurence of 11 species is reported, all of which are described and figured in the male sex (some also in the female). Four of these species are described as new: *C. auberti* sp.n. (Switzerland, Andorra, Austria, France, Germany, Slovakia, Spain), *C. geigeri* sp.n. (Switzerland, Germany), *C. lastovkai* sp.n. (Switzerland, Austria) and *C. schertenleibi* sp.n. (Switzerland, France, Andorra, Croatia). The quotations of these four species in two faunistic catalogues in the late 1990's must thus be considered as *nomina nuda*. They are published here again in a way that they meet the criteria of availability, including a formal description. The four following names are formally resurrected from the synonymy: *C. flavimanum* (Strobl, 1898) comb. n. (Bosnia-Hercegovina, France, Turkey), *C. griseinerve* (Duda, 1928) comb. n. (Austria, France, Italy, Montenegro, Switzerland), *C. infumatum* (Haliday, 1833) comb. n. (Ireland, Czech Republic, Great Britain, Norway, Russia, Switzerland) and *C. obscuritarse* (Strobl, 1898) comb. n. (Austria, Switzerland). New synonymies are established for *C. stackelbergi* Krivosheina, 2000, junior synonym of *C. nigripenne* (Meigen, 1830), and for *Scatopse sziladyi* Zilahi-Sebess, 1956, junior synonym of *C. triste* (Zetterstedt, 1850). Distributional data are summarized for each species. A key for the identification of males of the European species of *Colobostema* is provided.

Keywords: *Colobostema*, Scatopsidae, Palaearctic, European subregion, taxonomic revision, new species.

INTRODUCTION

Scatopsid flies of the genus *Colobostema* are usually rather poorly represented in collections, especially females, the proportion of which is often one to 25 or more males. This is probably due to their biology: at least some species appear to be myrmecophilous, since specimens have been repeatedly caught in company with ants of different species (Enderlein 1926, Donisthorpe 1927, O'Toole 1978, Andersson 1982). The true nature of their association with ants is not precisely known and immature stages of the genus remain undescribed. However, after O'Toole (1978) «Scatopsids such as *Colobostema nigripenne* [...] spend their entire life-cyle in the host-nest and adults, as well as larvae and puparia, are found in the nest-galleries.»

With about 60 species described from all parts of the world, *Colobostema* is one of the richest among the genera of the family Scatopsidae. In Europe (and the Palaearctic region as a whole), only two species were recognized by Cook (1974) in his «Synopsis of the Scatopsidae of the Palaearctic», a series of papers which set the bases of the modern classification of the family. The discovery in material from Switzerland of at least 6 different taxa (Haenni 1986) and the presence of numerous old synonyms of the two well known species *C. nigripenne* (Meigen, 1830) and *C.*

triste (Zetterstedt, 1850) (Krivosheina & Haenni 1986) made necessary the revision of all the available names referable to *Colobostema* in order to be able to correctly name the apparently new species from Switzerland. Through the kind help of many colleagues and institutions over many years (see under Acknowledgements) I was eventually able to study the types of nearly all the published names, including the new taxa that have been recently described from Northern Europe, Russia, and Kazhakstan by Krivosheina (2000, 2001), as well as numerous additional material from several collections.

As a result of the present study, the fauna of the West-Palaearctic includes at least 18 species, and there is no doubt that others still await discovery, especially in the Mediterranean region.

Only species occuring in the European subregion are dealt with in this fist contribution. A second part will include the taxa restricted to the Mediterranean subregion, together with a key to the West Palaearctic species and a discussion of the species-groups. Preliminary faunistic results of this study have been partly included in the first version of the Fauna Europaea database (Haenni 2004), although the precise data of numerous new country records are published here for the first time.

MATERIAL AND METHODS

Terminology of the external morphology and terminalia follows Haenni (1997). Each species is described and figured in the male sex and in the female, when known. Due to scarcity of females, associations have been made with great care. Because of the great uniformity of the external morphology, descriptions are kept rather short. In contrast, pregenital segment and genitalia are well differentiated and figures should allow an easier and safe identification. The genital capsule offers excellent characters, particularly on gonocoxites, epandrium and aedeagus. Tip of abdomen should always be cut and cleared in 10 % KOH to avoid misidentifications due to distorted pieces.

Acronyms of collections

Public collections:

DEI Deutsches Entomologisches Institut, Berlin
ETHZ Entomologische Sammlung, Eidgenössische Hochschule, Zurich
FBUB Biologische Sammlung der Universität, Bielefeld
FBUBA Facultat de Biologia, Universidad de Barcelona
MNG Museum der Natur, Gotha
INRAM Institut national de Recherches agronomiques, Montpellier
MHNG Muséum d'histoire naturelle, Genève
MHNN Muséum d'histoire naturelle, Neuchâtel
MNHN Muséum national d'Histoire naturelle, Paris
MNKS Museum für Naturkunde, Stuttgart
MSNL Museo cantonale di storia naturale, Lugano
MZL Musée cantonal de Zoologie, Lausanne
NHM (BMNH) The Natural History Museum, London (British Museum (Natural History))
NHMA Naturhistorisches Museum der Abtei Admont

NMID National Museum of Ireland, Dublin
PANW Polish Academy of Sciences, Warszawa
RISNB Institut royal des Sciences naturelles de Belgique, Bruxelles
SZMO Slezské zemské muzeum, Opava
VUIZ Vilnius University, Institute of Zoology, Vilnius
ZMAS Zoölogisch Museum, Amsterdam
MNKB Museum für Naturkunde, Berlin
ZMUH Finnish Museum of Natural History, Helsinki (Zoological Museum of the University, Helsinki)
ZMUB Zoological Museum of the University, Bergen
ZMUC Zoological Museum of the University, Copenhagen

Private collections:
CAK Alois Kofler, Lienz, Austria
CCV Catherine Vaucher-von Ballmoos, Fleurier, Switzerland
CDD Dieter Doczkal, Malsch, Germany
CDW Doreen Werner, Berlin
CRS Ryszard Szadziewski, Gdansk, Poland
CGB Gerhard Bächli, Dietikon, Switzerland
CMB Miroslav Barták, Prague
CPW Phil Whiters, Ste-Euphémie, France

SYSTEMATICS

Genus *Colobostema* Enderlein, 1926

Enderlein 1926: Zool. Anz. 68: 140; Cook 1956: Ann. ent. Soc. Am. 49: 325–332; Cook 1971: Aust. J. Zool., Suppl. Ser. 8: 9–29; Cook 1974: J. nat. Hist. 8: 62–64; Amorim 1982: Sist. filogén. Scatopsidae: 83–84 *et al.*; Freeman 1985: Hdbk Ident. Br. Ins. 9(7): 38; Haenni 1993: Ent. Scand. 23: 405–414; Krivosheina 2001: Int. J. Dipterol. Res. 12(2): 73–77; Huerta 2013: Zootaxa 3619(2): 183–194.

Type species. *Colobostema oldenbergi* Enderlein, 1926, by original designation (= *Scatopse tristis* Zetterstedt, 1850)

Description. Comparatively medium to large sized scatopsids (1.5–2.5 mm), usually velvety black, dull, except on lower parts of pleurae, shining; presence of more or less extended pale (whitish to bright orange yellow) parts on tibiae and tarsi, hind corners of thorax posterior to wing bases and, in females only in European species, basal segments of antennal flagellum. Pilosity well developed, more or less adpressed, except on head and dorsum, where it is more erect; microtrichosity generally distributed on body and legs giving a dull appearance; microtrichosity absent from katepisternum, most of meron (except broad dorsal margin and narrow posterior margin), mediotergite, posterior half of outer surface of fore and mid coxae, inner surface of mid and hind trochanters, inner half of hind coxa; consequently all these parts are shining black. Due to the dense microtrichosity, parts of the body, especially tibiae and tarsi, can appear whitish grey, more or less pollinose according to the direction of light. On the other hand old specimens in collections are very often faded and appear generally entirely brown, more or less blackish. Wings more or less infuscated, greyish to brownish, covered with dense microtrichosity. Halters with knob dark, grey or brown, and lighter, fulvous stem.

Head rounded, as wide as high, not laterally compressed, eyes densely micropilose, dichoptic in both sexes or hardly touching in one point above the antennae in some males; 3 well developed ocelli; antennae as long as thorax, about twice as long as head height, scape shorter than high, pedicel more or less cup-shaped, longer than wide, flagellum 8-segmented, widening toward apex, easy to count, last segment about twice as long as penultimate; flagellomere setation irregularly distributed; in females of some species, basal flagellomeres 1–4 more or less yellowish; face wide, pilose; labellae small, stipes fused proximally, palpi 1-segmented, short, with a subapical sensorial pit on inner face.

Thorax stouter than in most other scatopsid genera, not laterally compressed, scutum approximately as wide as long, rather quadrate in shape; supraalar setae developed, but not arranged in a regular row; shorter setae scattered over scutum and scutellum; following groups of setae present on pleural sclerites: anepisternal, upper episternal, subalar, subspiracular; spiracular sclerite broad, longer than high, more or less triangular in shape, setose, with large, submedian spiracular opening; postnotal phragma well developed.

Wings densely covered with microtrichia, macrotrichia present only on sclerotized anterior veins; posterior veins brownish, darker than membrane; M_1 and M_2 vanishing shortly before reaching wing margin, M_1 with a marked bend at basal third to fourth, often bearing a short spurious vein directed toward R_{4+5}, more or less apparent according to the angle of view; CuA_2 with a smooth double curve. Halters elongate, with knob longer than stem, bearing a few setae on stem.

Legs simple, of the usual type in Scatopsidae, densely pilose; posterior legs much longer than anterior and median pairs; anterior coxa elongated, all femora and tibiae simple, tarsi simple, length of tarsomeres decreasing from tarsomeres 1 to 4, 5th longer than 4th; claws simple, empodium well developed.

Abdomen with 7 pregenital segments; sternite 1 sclerotized; tergite 2 with a paired lunula-shaped zone with modified microtrichia along the anterior margin; segment 7 (pregenital) diversely modified in males of different species, always with a nearly complete, heavily sclerotized narrow basal ring; sternite 7 widened, laterally encompassing tergite 7; tergite 7 with posterior margin either produced or with a medial incision, frequently with an inner posterior fold, asymmetric in some species; spiracles of segment 7 on sides of sternite.

Genitalia: not rotated in male, sclerites fused in some degree to form a genital capsule; epandrium bilobed apically, lobes generally acute in West Palaearctic species, variously modified, tending to asymmetry; parameres well developed, heavily sclerotized; gonocoxites large, well developed; aedeagus with tip diversely modified; spermatic pump lying free in the abdomen. In female tergite 7 simple to more or less deeply notched medially on posterior margin; sternite 8 bearing a pair of valvifers, in some species a pair of basal submedian sclerotized plates; cercus large; spermatheca rounded, simple.

Diagnosis. The species belonging to the genus *Colobostema* are rather stout bodied, velvety black scatopsids with long antennae, broad quadrate thorax and variable yellowish or whitish annulation on legs and sometimes on antennae. This peculiar habitus among scatopsids makes this genus quite easily recognizable, even with bare eyes, which is quite unusual for this family. Rounded head with dichoptic eyes in both sexes (or hardly holoptic in some males) together with notum broad,

quadrate, practically as wide as long, not compressed laterally, allow easy recognition of *Colobostema* from other genera of Scatopsini except *Holoplagia*; *Colobostema* differs from the latter by the absence of a complete cross-vein connecting M_1 and R_{4+5} (with at most a weakly developed, anteriorly directed short spurious vein arising from bend of M_1 towards R_{4+5}). Other characteristic features are antennae very apparent, large, as long as thorax or even longer and about twice as long as head height, flagellomeres usually well separated, with setation not arranged in whorls, genital capsule of male usually not rotated, with a pair of parameres, a pair of well developed gonocoxites, and long, bilobed epandrium, the sternite 8 of female with a pair of valvifers.

Taxonomic remarks. As pointed out by Amorim (1982) who lists a series of about 25 synapomorphies for *Colobostema*, this genus is one of the best characterized of the Scatopsidae. However, like several other Enderlein genera, it was very poorly characterized when it was originally established in 1926 for two European and one New Guinean species (Enderlein 1926), with only trivial wing venation features, The type species designated by Enderlein (1926: 140) himself as «*Colobostema oldenbergi* n.sp.» is in fact a synonym of the well known European species *Scatopse tristis* Zetterstedt, while the other included species – the European *S. incompleta* (Verrall, 1886) – is clearly not congeneric with the type species. Hence, other workers of the family could not properly recognize this genus for a long time, until Cook (1956) redescribed the type species and used the name *Colobostema* in a new concept to include a series of morphologically well characterized and clearly related species. It is worth mentioning that Duda (1928), in his for his time excellent key for the Palaearctic species, had already segregated these species on the basis of the same characters as the «*nigripenne*-Gruppe», but without giving a formal taxonomic status inside of genus *Scatopse*. Three European species were included in this group by Duda (loc.cit.), but only two of them were recognized by Cook (1974), who accepted all the synonymies established by former authors on the base of comparison of descriptions only. On the other hand, many new species of *Colobostema* have been described and some older names revised. This includes mainly species from North America (Cook 1956), South Africa (Cook 1965), Australia (Cook 1971), Nepal (Cook 1978), Oriental Region (Freeman 1990), Africa (Haenni 1993a), China (Yang 1995), Russia and adjacent countries (Krivosheina 2000), Northern Europe (Krivosheina 2001), Belize (Haenni & Rapp 2003) and Mexico (Huerta & Ibáñez-Bernal 2008, Huerta 2013). The number of described species in the world (including those in the present work) summs up to about 60, but I have seen material of about 15 additional undescribed species from several parts of the world (North Korea, Taiwan, Nepal, New Guinea, East Africa, Australia, Panama), while Amorim (1982) reported seven undescribed Neotropical species. This would bring the total number to some 90 species worldwide. However, there is no doubt that many more remain undiscovered, not only in the tropical regions, where they might be very numerous, but even in the more intensively collected temperate regions.

The placement of *Colobostema* in the subfamily Scatopsinae proposed by Cook (1963) is well founded and generally accepted. *Colobostema* was first placed in the tribe Scatopsini by Cook (1963, 1974), but Amorim (1994) erected the tribe Colobostematini for this genus and the following more or less related genera: *Holo-*

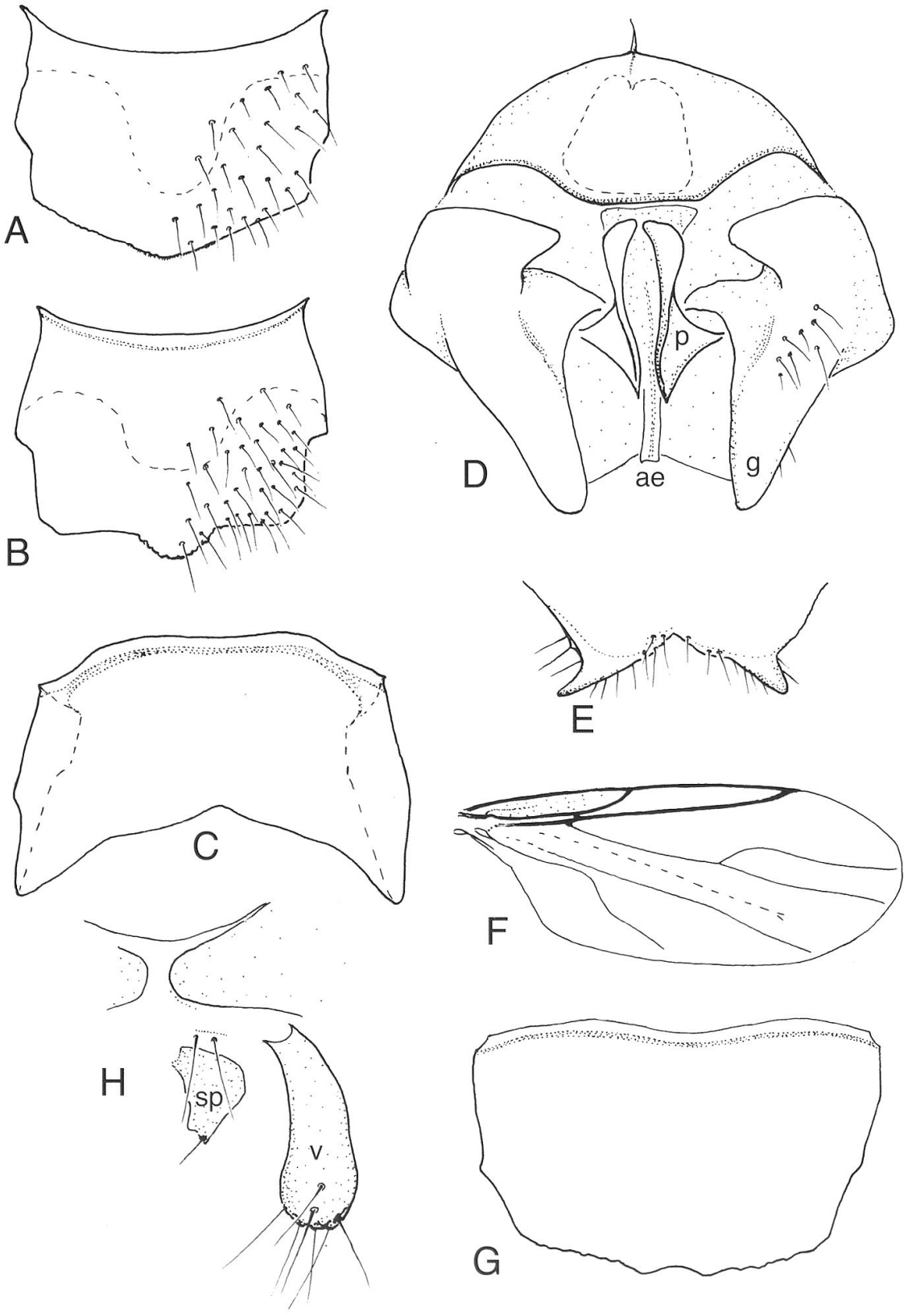

Fig. 1. *Colobostema auberti* sp. n.: A–B. Tergite 7, ♂, under different angles of view. – C. Sternite 7, ♂. – D. Genital capsule, ♂, ventral. – E. Epandrium, ♂, distal part, dorsal. – F. Wing venation, ♂. – G. Tergite 7, ♀. – H. Sternite 8, ♀, (detail) with left submedian sclerotized plate and valvifer. (abbreviations: ae = aedeagus; g = gonocoxite; p = paramere; sp = sclerotized plate; v = valvifer 8).

plagia Enderlein, 1912, *Ferneiella* Cook, 1985, *Efcookella* Haenni, 1998 (= *Cookella* Freeman, 1985), *Lumpuria* Edwards, 1928 (= *Villoscatopse* Cook, 1978), *Borneoscatopse* Freeman, 1990, and the fossil genus *Procolobostema* Cook, 1971 (Oligocene / Miocene). More recently Amorim (1998) elucidated the relationships of the genera within the tribe Colobostematini.

There has been much confusion concerning the grammatical gender of *Colobostema*, the name being sometimes treated as a feminine word, sometimes as a neutral one. Enderlein himself (1926) in the original description of the genus described *C. fumipenne* (neutral), but also included *C. incompleta* (feminine). In fact *Colobostema* is derived from the Greek words κολοβοσ ('*colobos*', truncate, shortened, uncomplete) and στημα ('*stema*', standing piece, button). Etymologically, the name very probably refers to the truncate stem vein arising anteriorly from vein M_1, a character pointed out by Enderlein (1926) in the original description. *Stema* is a neutral substantive and the species included in this genus must thus end in *-um* or in *-e*.

Colobostema auberti sp. n.

(Figs 1A–H)

Colobostema auberti Haenni, 1998: Fauna Helv. 1, Diptera Checklist: 141, *nomen nudum*; Haenni, 1999: Checkliste Dipt. Deutschl. Studia Dipt. Suppl. 2:74, *nomen nudum*.

Type locality. SWITZERLAND, canton Neuchâtel: St Blaise.

Material examined. **Holotype** ♂, labelled: «SUISSE-NE: St. Blaise (Le Villaret), 550 m, 23.V.1979, J.-P. Haenni leg.», «S2810», «HOLOTYPE *Colobostema auberti* n. sp. ♂ Haenni, 2010»: the holotype is slide-mounted in collection of MHNN. **Paratypes** (2 ♂♂, 1 ♀): same data as holotype, except «S2811-13» in coll. MHNN.

Other material. ANDORRA. Vall Sant Roc (Santa Coloma), 1050 m, 1 ♂, 1–15.VI.1993, J. Pujade, FBUBA. — AUSTRIA. Kärnten, Bad Villach, 24.VII.1927, 1 ♂, Oldenberg, DEI (labelled «*femoralis* Mg. Oldbg», «*tristis* Zett. ♂ d. Duda»). — FRANCE. Alpes-Maritimes: Thorenc (Le Plan du Peyron), 1150 m, 14.VI.1994, 1 ♂, J.-P. Haenni, MHNN; Doubs: Quingey, 750 m, 1.VIII.1990, 1 ♂, 1 ♀, M. Barták, CMB. — GERMANY. Nordrhein-Westfalen: Bielefeld (Johannisberg), 21.IX.1983, 1 ♂, M. von Tschirnhaus, FBUB. Thüringen: Leutra BEI Jena, NSG Leutratal, 18–28.IV.1995, 1 ♂, R. Bellstedt, MNG. — SLOVAKIA. Hegy Farok, 180 m, 24.VII.1989, 1 ♂, M. Barták, CMB. — SPAIN. Gerona: Olot (Las Presas, Sant Privat d'en Bas), 20.VI.1985, 1 ♂, M. von Tschirnhaus, MHNN. — SWITZERLAND. BL: Bubendorf, 6–13.VII.2000, 1 ♂, M. Wolf, CGB; GE: Bernex-Signal, 510 m, 2.V.2008, 1 ♂, B. Merz, MHNG; NE: Gorgier (Les Ouches), 11–13.V.1976, 2 ♂♂, d'Agostini, MHNN; Le Cachot, 1050 m, 29.V.1974, 1 ♂, W. Matthey, MHNN; TI: Vezia S. Martino, 410 m, 20–26.VIII.1979, 1 ♂, C. Dufour & W. Geiger, MHNN; Boscior, Medeglia, 945 m, 1.VIII.1991, 1 ♂, F. Rampazzi, MSNL; same, 3.IX.1992, 1 ♂; Campra di Là (Olivone), 1425 m, 10–19.VII.1994, 1 ♀, L. Pollini, MSNL; Locarno env. (Monte Bré), dates ranging from 25.III to 22.IV.1997, 2 ♂♂, M. Moretti, MSNL/MHNN (detail of captures in Haenni & Moretti in prep.); VD: Onnens (Chassagne), 530 m, 13.V.1979, 1 ♂, J.-P. Haenni, MHNN; Lutry, 20.VII.1954, 1 ♂, J. Aubert, MZL; same, 25.IV.1955, 1 ♂; same,

1.VII.1956, 1 ♂; VS: Salgesch (Bois de Finges), 540 m, 17.VI.1997, 4 ♂♂, J.-P. Haenni, MHNN; Jeizinen, 26.VI.1999, 1 ♂, G. Bächli, CGB.

Diagnosis. *C. auberti* may be readily distinguished from all other species of the genus in males by the shape of tergite 7 (Fig. 1A–B), nearly pentagonal or practically square with a short rounded median posterior projection (shape variable according to the angle of view), and at the same time short transverse, practically symmetrical posterior projections of the epandrium (Fig. 1E).

Description. Male. 2.0–2.3 mm; body generally dull black as usual, covered with dense dark microtrichosity, except katepisternum, lower part of meron and mediotergite, devoid of microtrichosity, shining black; base of wing fulvous brown, wing membrane very slightly tinged brownish, costal cell somewhat darker, anterior veins brown, posterior veins light brownish, hardly contrasting with membrane; halter black with contrasting fulvous stem; legs dark brown except yellowish-brown contrasting basal fourth-fifth of tibiae, tarsomeres 1–3 yellowish brown, 4–5 darker brown; pregenital abdominal segment weakly shining, aedeagus fulvous brown.

Head. Eyes separated on frons by about width of median ocellus; antennae as long as thorax, flagellomere 1 lighter at extreme base, longer than wide, 2 as long as wide, 3 to 7 wider than long, last somewhat shorter than 2 preceding ones together.

Thorax. Notum square, practically as long as wide; wing (Fig. 1F), 2.5–2.6 mm long; M_1 with angle not very marked, and stem of vein very short if present; stem of M vein practically as long as fork M_1M_2.

Abdomen. Segment 7 with a complete sclerotized basal ring; tergite 7 (Fig. 1A–B) in the shape of a roughly trapezoidal plate, that may appear also more or less squared, with a short rounded median projection; sternite 7 with a shallow V-shaped median posterior emargination (Fig. 1C); genital capsule (Fig. 1D) rounded, gonocoxites triangular, rather massive, parameres with rather blunt apex, epandrium apically with a short, slightly asymmetrical, paired transverse projection (Fig. 1E), aedeagus of medium length, thick, somewhat enlarged at apex.

Female. As male in general colour and appearance; base of first antennal flagellomere contrasting yellow; tergite 7 with posterior margin entire, slightly undulated (Fig. 1G); sternite 8 bearing a pair of elongate, apically rounded and somewhat inflated valvifers and a pair of submedian sclerotized plates basally (Fig. 1H).

Taxonomic remarks. The manuscript of this revision was already in an advanced stage of elaboration in the early 1990's, and this was the reason for the inclusion of *C. auberti* in the Swiss and German Diptera checklists (Haenni 1998, 1999). However, its publication (and thence the description of this new species) was then unfortunately delayed for years. The quotation of *C. auberti* in Haenni (1998, 1999) must thus be considered as *nomen nudum*.

Distribution. This species appears to be widely distributed in Central Europe, where it is known from about 20 localities ranging from the Pyrenees (Spain, Andorra), France, to Switzerland, Germany, Austria and Slovakia.

Ecology. Most specimens have been collected by sweeping in various herbaceous habitats, with preference for thermophilous meadows. The flight period extends from end of April to September.

Derivation of name. The new species is named in memory of the distinguished Swiss entomologist, the late Prof. Jacques Aubert, from Musée cantonal de Zoolo-

gie in Lausanne, who collected the first specimens of this new species and introduced the author into the fascinating world of Diptera many years ago.

Colobostema dudai Krivosheina, 2001

(Figs 2A–G)

Colobostema dudai Krivosheina, 2001: Int. J. Dipterol. Res. 12(2):75, Figs 1–5, 9, 11–15.

Type locality. RUSSIA, Karelskaia A. R., Lakhdenpokh'ya [formerly Jaakkima, Finland]. Krivosheina (2001) stated that the type locality is in Finland on the base of the label of the holotype, but according to P. Vilkammaa (in litt.) this locality situated on the northern shore of Lake Ladoga is now in Russian Carelia.

Material examined. **Holotype** ♂ labelled: «Jaakkima / Forsius / 743 [printed, the latter on blue paper] / *Scatopse tristis* Zett. [handwritten in red] / *tristis* Zett. var *griseinervis* det Duda [in Duda's handwriting] / Mus. Zool. H:fors Spec. typ. No 4723 S. *tristis* v. *griseinervis* Duda [partly handwritten] / Mus. Zool. Helsinki N:o 15167 [yellow printed label, number handwritten] / Mus. Zool. Helsinki Loan Nr D 00 - 65 [printed yellow label] / Holotypus ♂ *Colobostema dudai* Kriv. [in Krivosheina's handwriting, red label] / Mus. Zool. Helsinki Loan Nr D 02 - 122 [printed yellow label]». The holotype deposited in the collection of ZMUH, Helsinki, is double-mounted, with tip of abdomen cleared and mounted in a drop of conservative medium on a piece of acetate pinned on the same pin as specimen; it is in rather poor condition, strongly faded and lackings several parts (flagellum of antennae, anterior right leg, tarsi of mid left leg and posterior left leg missing). **Paratype** ♀ labelled «Jaakkima» / «Forsius» / «760» / «*Colobostema triste* Zett. N. Krivosheina det. 1999» [in Krivosheina's handwriting] / / Mus. Zool. Helsinki Loan Nr D 00 - 67 [printed yellow label] / **Paratype** ♀ «*Colobostema dudai* Krivosheina». [in Krivosheina's handwriting, red label] / Mus. Zool. Helsinki Loan Nr D 02 - 123 [printed yellow label]. Paratype preserved and prepared in the same way as the holotype, ZMUH.

Diagnosis. The posteriorly 4-lobed tergite 7 of the male (Fig. 2A) and the elongate and pointed, nearly transverse and subapically anteriorly toothed terminal lobes of the epandrium (Fig. 2D) are unique to this species among the Palaearctic representatives of the genus.

Description. Male. About 1.8 mm; entirely brownish, clearly faded, dull (except lower pleura, shining as usual).

Head. Eyes widely separated by width of anterior ocellus; antennae broken on type.

Thorax quadrate, as wide as long, pubescence on notum sparse; wing (Fig. 2E) 2.0 mm, uniformly brownish; M_{1+2} shorter than medial fork; M_1 smoothly angled at basal $^1/_4$, with a short anteriorly directed spur of vein visible.

Abdomen. Pregenital segment with a complete basal sclerotized ring; tergite 7 (Fig. 2A) with two pairs of rounded posterior lobes, outer shorter than inner one, slightly asymmetrical, ending in a point much developed on right lobe, but hardly indicated on left lobe; sternite 7 (Fig. 2B) encompassing tergite, with a pair of elongate outer lobes, deeply emarginate on posterior margin, medially with a shallow inner emargination; genital capsule (Fig. 2C) with shortened triangular, apically pointed gonocoxites, bearing an inner basal process apically acute, parameres elong-

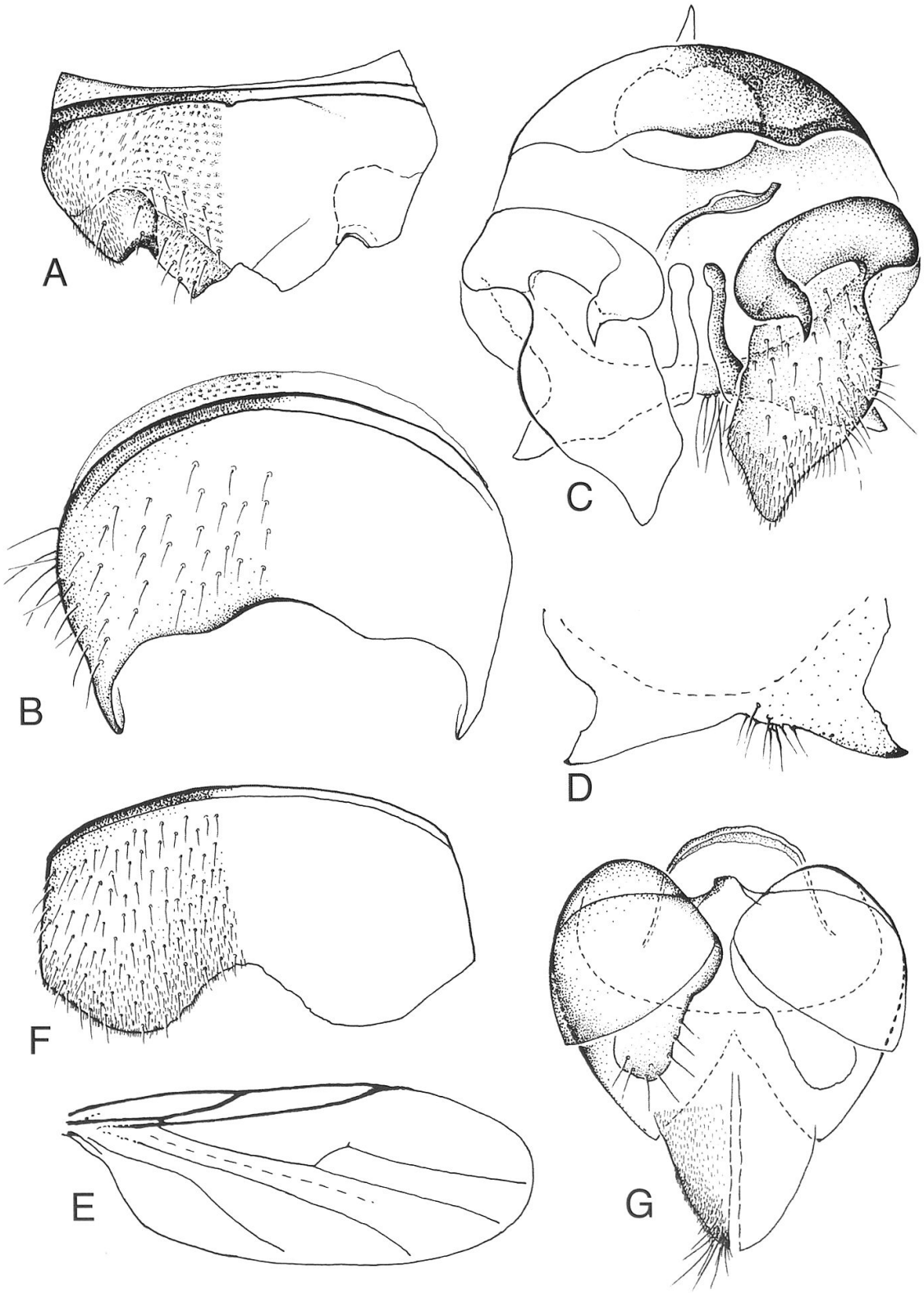

Fig. 2. *Colobostema dudai* Krivosheina: A. Tergite 7, ♂. – B. Sternite 7, ♂. – C. Genital capsule, ♂, ventral. – D. Epandrium, distal part, dorsal. – E. Wing venation, ♂. – F. Tergite 7, ♀. – G. Sternite 8, ♀.

ate, epandrium with nearly transverse, elongate and pointed, subapically anteriorly toothed apical lobes (Fig. 2D), aedeagus filiform with a preapical elongate swelling.

Female. Description fragmentary due to the poor state of preservation of the only known female specimen; about 1.9 mm; as male in colour and morphology; antennae complete, with flagellar segments wider than long except first hardly longer than wide; wing 1.8 mm; tergite 7 notched medially on the posterior margin (Fig. 2F); valvifers on sternite 8 broadened, rounded apically (Fig. 2G)

Taxonomic remarks. The male holotype was labelled *triste* var. *griseinerve* by Duda, who considered it as belonging to the same variety as a male from Macugnaga (Italian Alps) («ein gleiches Tier fand ich in der S. aus Helsingfors: 'Joakima, Forsius 43, *Scatopse tristis* Zett.' und ein ♂: 'Lapponia Palmen 635 *Sc. infumata*'») (Duda 1928). However, the genitalic structure of the Jaakima specimen clearly differ from that of the Macugnaga specimen (see *C. griseinerve*, further on), while the other specimen from Lapponia in the Helsinki Museum belongs to *infumatum* (Hal.), according to Krivosheina (2001).

Distribution. Until now known only from the type locality, in Northern Russia (Carelia).

Ecology. Nothing is known on the ecology, biology and phenology of this species.

Colobostema flavimanum (Strobl, 1898) comb. n.

(Figs 3A–F)

Scatopse tristis Z. var. *flavimana* Strobl 1898b: Glasn. zemalj. Mus. Bosni Herceg. 10: 592; Duda 1928: Scatopsidae, Fliegen pal. Reg. 2(1)5: 39.

Type locality. BOSNIA-HERCEGOVINA: Jablanica.

Material examined. **Holotype** ♂, labelled: «*Sc. tristis* Z. v. *albimana* m. Jablanica ? Strobl» [in Strobl's handwriting, green label]; labelled by me: «*Scatopse tristis* Z. v. *flavimana* Strobl Holotype rev. Haenni 1990» / «*Colobostema flavimanum* (Strobl) comb.nov. Haenni 1990». Type specimen in fairly good condition, pinned, preserved in Strobl's collection, Admont, Austria (NMBA).

Other material. FRANCE. Rhône: Charnay, jardin, Malaise trap, 1–10.VI.1997, 1 ♂, P. Withers, CPWL (Haenni & Withers 2007). — ITALY. TO: Villar Pellice, 9–13.VII.2002, 2 ♂♂, G. Bächli, CGB/MHNN. — TURKEY. Zonguldak, 30 km S, 200 m, 23.VII.1962, 1 ♂, W. Götz, MHNN.

Diagnosis. *C. flavimanum* is a rather isolated species, that can be easily distinguished from other species of the genus by the very peculiar shape of tergite 7 in males, with its rounded, broadly convex, posterior projection (Fig. 3A); genital capsule has broad, very massive, apically rounded gonocoxites with inner margin bearing spinose microtrichosity (Fig. 3C), also very characteristic, as is the apically contorted bifid aedeagus (Fig. 3D).

Description. Male. 1.9 mm; brown-black (lighter in somewhat faded type specimen), dull (except katepisternum, meron and mediotergite), with short sparse brownish pilosity, longer on tergite 7 and abdomen ventrally; base of first flagellomere slightly yellowish brown; a pair of yellow spots on notum posterior to wing base; wing membrane light brownish, more yellowish at extreme base, costal cell

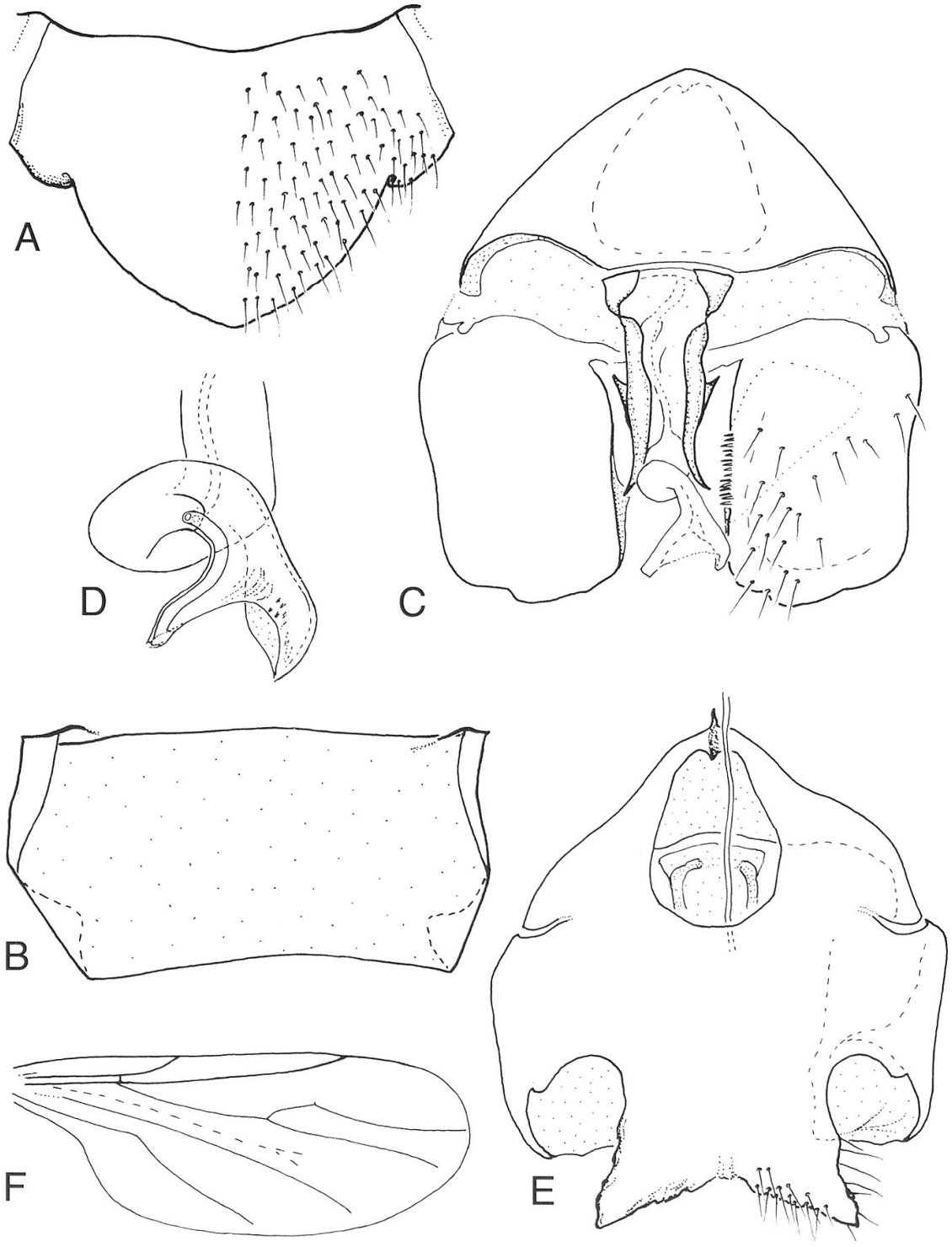

Fig. 3. *Colobostema flavimanum* (Strobl): A. Tergite 7, ♂. – B. Sternite 7, ♂. – C. Genital capsule, ♂, ventral. – D. Tip of aedeagus, ♂. – E. Genital capsule with epandrium, ♂, dorsal. – F. Wing venation, ♂.

and vicinity of Rs and r-m darker brown and a lighter zone between apex of R_{4+5} and basal angle of M_1; veins brown, contrasting with membrane; halters brown black, with fulvous stem; femora brown black, tibiae mainly yellowish brown with a broad (T1, T2) or narrow (T3) dark ring, tarsi yellowish brown.

Head with eyes nearly touching on front above antennae (distance between them about 1/2 ommatidium); antennae hardly widened toward apex, flagellomeres well separated, first longer than wide, following wider than long, last flagellomere shorter than two preceding ones together.

Thorax. Notum slightly longer than wide. Wing (Fig. 3F), 2.6 mm long, M_{1+2} slightly shorter than medial fork.

Abdomen. Pregenital segment with a complete narrow basal sclerotized ring; tergite 7 posteriorly with a broadly convex projection (Fig. 3A) (which is apically slightly pointed in the specimen from Bosnia-Hercegovina, while no indication of such a point is present in other known specimens); sternite 7 with posterior margin nearly straight (Fig. 3B); genital capsule (Fig. 3C) massive, with gonocoxites stout, apically rounded, spinose, microtrichosity present along inner margin, parameres long and acute apically, aedeagus enlarged and bifurcated at apex (Fig. 3D), epandrium with practically symmetrical posterior bifid process (Fig. 3E). There are other slight differences between Turkish and French specimens, i.e. gonocoxites more markedly indentated apically, posterior margin of bidentate projection more straight, but this is obviously only intraspecific variation.

Female unknown.

Taxonomic remarks. Though labelled by Strobl as var. *albimana*, instead of *flavimana* (most probably a lapsus linguae or a collection name), there is no doubt that this unique specimen is the type of var. *flavimana*: the locality and the sketchy original description agree with it. Jablanica is the name of several localities in different parts of Yugoslavia, but the only Jablanica visited by Strobl during his entomological trip to Croatia, Dalmatia and Bosnia-Hercegovina was the locality on the river Neretva, at the railroad line between Sarajevo and Ragusa (now Dubrovnik), 81 km SW Sarajevo (Prior P. Hubl in litt.).

Distribution. Known only from four widely separated localities, namely in Bosnia-Hercegovina, France (Haenni & Withers 2007), Italy and Turkey.

Ecology. Practically unknown, the original description specifies only that the type specimen was caught along a forest edge. The Turkish specimen was caught by means of a fruit baited trap placed for Drosophilidae on the southern slope of a valley with a little brook, in an intermixed oak-woods and agricultural landscape; the French specimen was trapped in a village garden. Flight-period is June and July.

Colobostema geigeri sp. n.

(Figs 4A–F)

Colobostema geigeri Haenni, 1998: Fauna Helv. 1, Diptera Checklist: 141, *nomen nudum*; Haenni 1999: Checkliste Dipt. Deutschl. Studia Dipt. Suppl. 2: 74, *nomen nudum*.

Type locality. SWITZERLAND, canton Ticino: Vezia San Martino.

Material examined. **Holotype** ♂ labelled «CH-TI Vezia S. Martino, 410 m, 3–9.IX.1979, C. Dufour & W. Geiger» / «S3978»/ «*Colobostema geigeri* n.sp. ♂ HOLOTYPE Haenni 1990». Paratype ♂, same data as holotype but

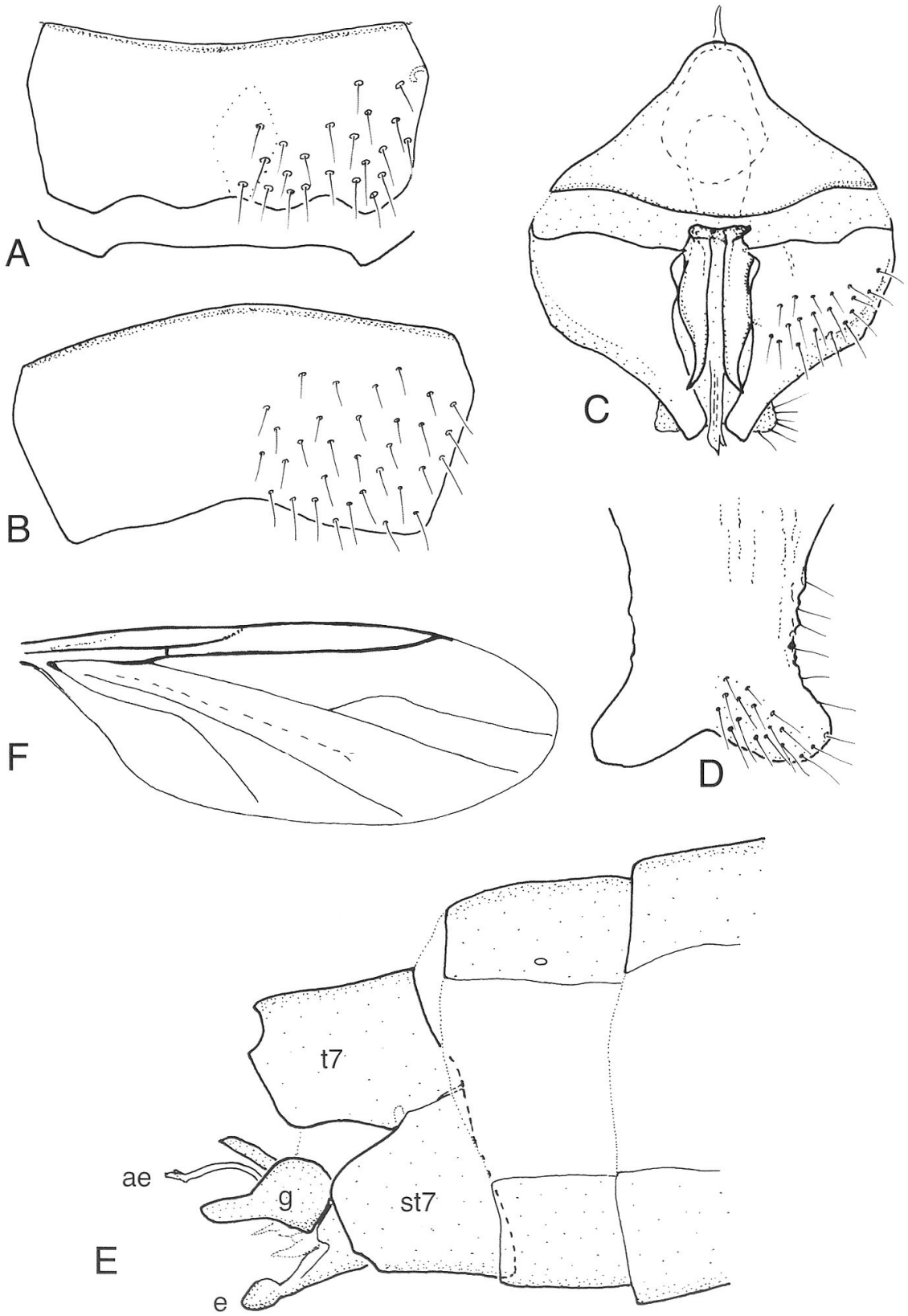

Fig. 4. *Colobostema geigeri* sp. n.: A. Tergite 7, ♂, with diagrammatic outline of the posterior margin of an other specimen (below). – B. Sternite 7, ♂. – C. Genital capsule, ♂, ventral. – D. Epandrium, distal part, ♂, dorsal. – E. Tip of abdomen, ♂, lateral, (diagrammatic, pilosity omitted). – F. Wing venation, ♂. (abbreviations: ae = aedeagus; e = epandrium; g = gonocoxite; st7 = sternite 7; t7 = tergite 7).

«16–22.VII.1979» and «S3979». Holotype and paratype preserved in alcohol, in coll. MHNN.

Other material. GERMANY. Nordrhein-Westfalen: Köln (Grüner Kuhweg NSG), 31.V–6.VI.1989, 1 ♂, J. Wehlitz, MHNN. — SWITZERLAND. VD: Les Grangettes, Gros Brasset, 19.VI.1992, 1 ♂, M. Sartori, MZL; Changins, 2001, 1 ♂, P. Duelli, MHNN.

Diagnosis. In males the posteriorly shallowly emarginate tergite 7 (Fig. 4A), together with the shape of the epandrium, whose distal lobes are apically rounded and fused for a long distance (Fig. 4D) are characteristic of this species. The shape of the gonocoxites, triangular and shortened (Fig. 4C), is also unique among the Palaearctic species of *Colobostema*.

Description. Male. 2.0–2.3 mm long (in alcohol); brownish black in general colour (although somewhat discoloured by alcohol), with pilosity lighter; a pair of light spots at the posterior corners of the notum posteriorly to the wing bases; wings light brownish, anterior veins brown, posterior veins brownish; halters brown with lighter stem; legs concolourous with body, except basal third or fourth of tibiae and tarsi lighter.

Head rounded in general shape, about as long as high; eyes separated by about the width of the anterior ocellus; antennae long, flagellum 8-segmented, slightly widening towards apex; first flagellomere quadrangular, lighter on basal third, flagellomeres 2 to 7 widening and shortening progressively, well separated, somewhat cup-shaped.

Thorax. Quadrate; wing (Fig. 4F), 2.1–2.3 mm long; M_1 with a well marked angle at about basal third, but no visible anteriorly directed stem of vein; stem of M vein about as long as fork M_1M_2.

Abdomen. Pregenital segment with a complete basal sclerotized ring; tergite 7 wider than long, not produced posteriorly, but broadly emarginate medially (Fig. 4A) on posterior margin, appearing more or less undulated according to the angle of view; sternite 7 slightly emarginate on posterior margin (Fig. 4B); genital capsule (Fig. 4C) with characteristic triangular gonocoxites, pointed parameres, epandrium elongate, with apical lobes rounded, fused for a long distance (Figs 4D–E), aedeagus elongate, shortly emarginate apically.

Female unknown.

Taxonomic remarks. The quotation of *C. geigeri* in Haenni (1998, 1999) must be considered as *nomen nudum* (see above *Colobostema auberti* sp. n., 'Taxonomic remarks').

Distribution. The species is presently known from only four localities, in Switzerland and Germany.

Ecology. As far as can be infered from these scattered occurences, *C. geigeri* sp. n. seems restricted to lower elevations. Its flight-period extends from end of June to beginning of September.

Derivation of name. The new species is named in honour of my friend Dr Willy Geiger, Swiss entomologist and nature conservationist, who first collected this new species.

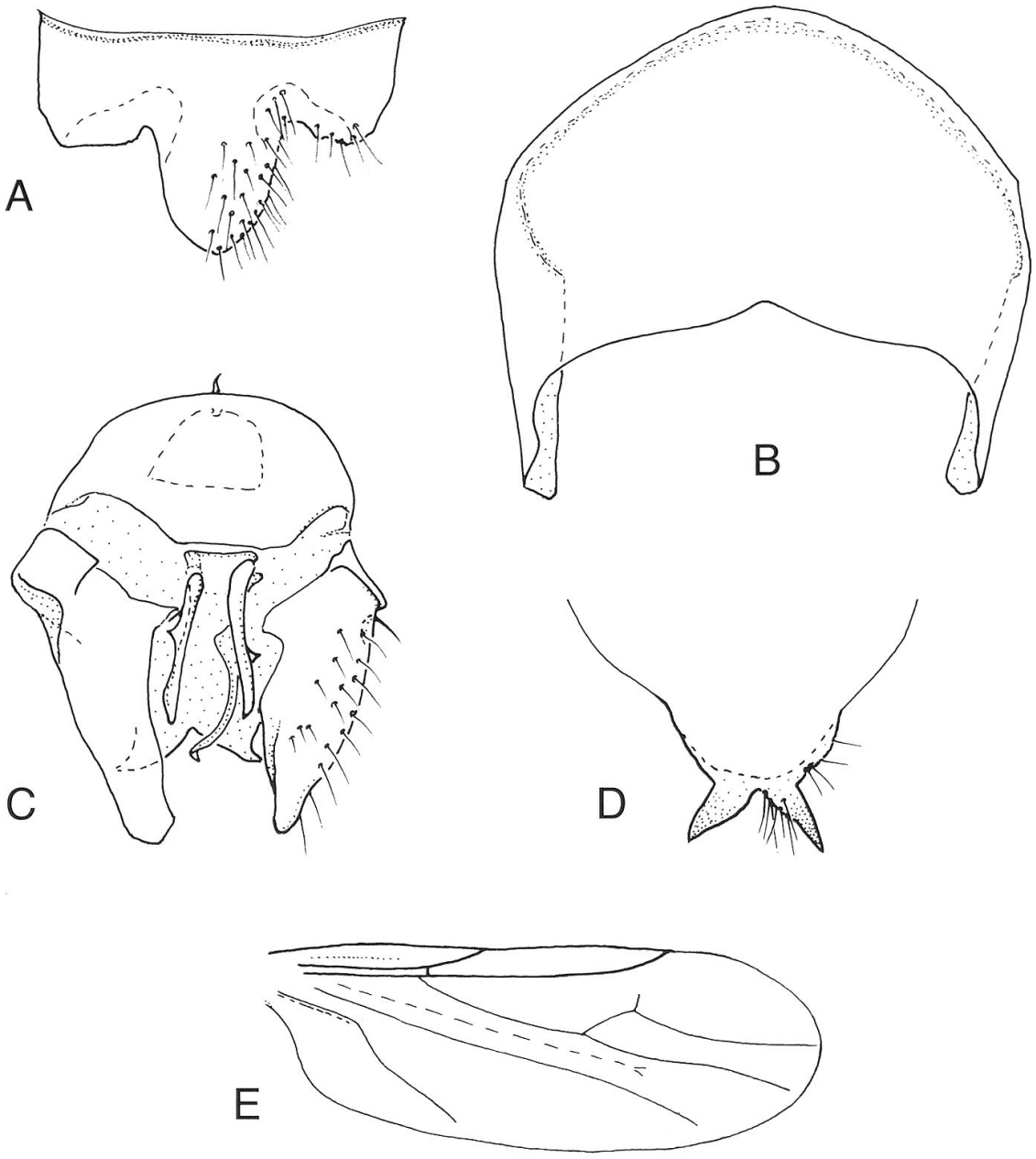

Fig. 5. *Colobostema griseinerve* (Duda): A. Tergite 7, ♂. – B. Sternite 7, ♂. – C. Genital capsule, ♂, ventral. – D. Epandrium, distal part, ♂, dorsal. – E. Wing venation, ♂.

Colobostema griseinerve (Duda, 1928) comb. n.

(Figs 5A–E)

Scatopse tristis Zett. var. *griseinervis* Duda, 1928: Scatopsidae, Fliegen pal. Reg. 2(1)5:39.

Type locality. ITALY, prov. Novara: Macugnaga, Mte Rosa.

Material examined. **Holotype** ♂, labelled: «Mte Rosa 4.8.00» [in Oldenberg's handwriting] / «Macugnaga Oldenberg» / «Coll. Oldenberg» / «Typus» / «*tristis* Z. var. *griseinervis* oder n. sp. ♂ d. Duda» [in Duda's handwriting] / «coll. DEI. Ebers-

walde»; I have labelled it «*Colobostema griseinerve* comb.n. JP Haenni rev. 1990 Holotype ♂»; type specimen pinned, in good state, preserved in the collections of the DEI, Eberswalde.

Other material. AUSTRIA. Kärnten: Heiligenblut, 4.VIII.1927, 1 ♂, coll. Oldenberg, DEI. — FRANCE. Alpes-de-Haute-Provence: Thorame-Haute (Orgeas), 2000 m, 1 ♂, 21.V.1999, L. Micas, INRAM (Haenni & Withers 2007). — MONTENEGRO: Durmitor, 1500 m, 30.VII–5.VIII.1988, 1 ♂, G. Bächli, CGB. — SWITZERLAND. LU: Menzberg, 1000 m, 3–6.VIII.1983, 2 ♂♂, G. Bächli, CGB; TI: Bolle di Magadino, 17–20.VI.1995, 1 ♂, B. Merz & G. Bächli, MHNN; Locarno env., (Ronco s/Ascona, Locarno, Gordola, Orselina, Minusio, Cugnasco), dates ranging from 25.III to 12.VIII.1997, 32 ♂♂, M. Moretti, MSNL/MHNN (detail of captures in Haenni & Moretti in prep.).

Diagnosis. Males of *C. griseinerve* can be separated from those of other European species of the *nigripenne*-group (that have tergite 7 strongly produced posteriorly medially) by the shape of the epandrium, which has posterior projections slightly but clearly asymmetrical, horn-like, pointed and rather heavily sclerotized (Fig. 5D), and by the elongate gonocoxites, appearing either pointed or rounded at apex, according to the angle of view (Fig. 5C).

Description. 1.9 mm long; brown black in general colour (type somewhat faded), dull except lower pleurae shining as usual; antennae entirely dark; wings greyish brown with a lighter zone above angle of M_1 that extends up to apex of R_{4+5}; veins dirty brownish grey; legs concolourous with body except basal third of tibiae and tarsi lighter.

Head. Eyes approximated on frons above antennae, separated by less than half width of anterior ocellus; antennae slightly widening towards apex, flagellomeres comparatively closer to each other than is usual for the genus; first flagellomere longer than wide, second as long as wide, following wider than long, last flagellomere almost twice preceding one.

Thorax. Notum hardly longer than wide; wing (Fig. 5E) densely covered with microtrichia; anteriorly directed stem spurious vein on M_1 conspicuous, long; M_{1+2} clearly shorter than medial fork.

Abdomen. Basal sclerotized ring of segment 7 incomplete; tergite 7 (Fig. 5A) with narrow, apically pointed posterior projection and a pair of comparatively wide lateral expansions, inner fold well developed; sternite 7 (Fig. 5B) with a shallow V-shaped posterior emargination; genital capsule (Fig. 5C) with gonocoxites slightly asymmetrical, apically pointed or rounded, according to angle of view; parameres elongate; epandrium (Fig. 5D) with heavily sclerotized, pointed, asymmetrical posterior projections, aedeagus of medium length, sinuous.

Female unknown.

Taxonomic remarks. Duda (1928) erected this «variety» for some supposedly aberrant specimens of *C. tristis* Zett., characterized by more or less grey wings and veins. As can be seen from his identification label of the type, he hesitated on what status to give to this form that he considered as «eine Uebergangsform von *nigripennis* zu *tristis*» (Duda 1928). This taxon has never been referred to since its description. It corresponds, however, to a very distinctive species belonging to the *nigripenne*-group of species. The wing coloration features used by Duda (1928) are evidently insufficient to allow identification, as is demonstrated by the fact that the only other specimen of *C. griseinerve* (from Heiligenblut, Austria) seen by Duda

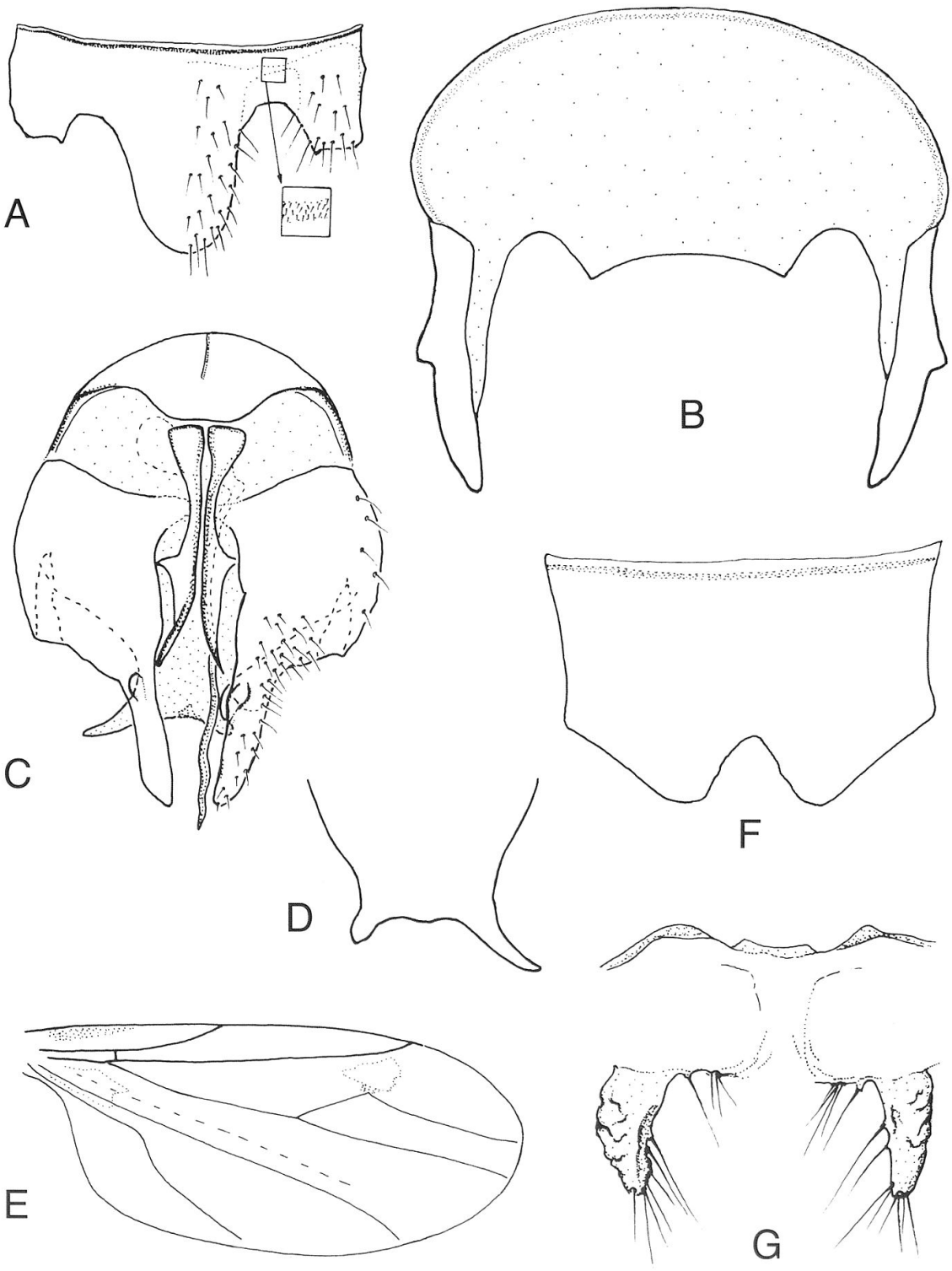

Fig. 6. *Colobostema infumatum* (Haliday): A. Tergite 7, ♂. – B. Sternite 7, ♂. – C. Genital capsule, ♂, ventral. – D. Epandrium, distal part, ♂, dorsal. – E. Wing venation, ♂. – F. Tergite 7, ♀. – G. Sternite 8, ♀ (detail), with valvifers.

had been labelled by him as *tristis* Zett. Duda attributed also to the variety *griseinerve* three specimens from Finland and Lappland based on rather trivial wing and legs coloration characters (which are variable and clearly of no taxonomic value in this genus); two of these specimens have been recognized since then as the types of a distinct species (*C. dudai* Krivosheina, see above under this species) and the latter specimen as belonging to *C. infumatum* (Hal.) by Krivosheina (2000).

Distribution. *C. griseinerve* has been recorded from France (Haenni & Withers 2007) and Switzerland (Haenni 1998). It is apparently restricted to the mountainous ranges of Central and South-Eastern Europe, with about 15 localities from the Alps of Austria, France, Italy, and Switzerland, and from the Durmitor range in Montenegro.

Ecology. Most occurences are from mountainous level, but there are also low altitude catches, especially from Switzerland south of the Alps (Ticino). Dates of capture when known range from March to beginning of August.

Colobostema infumatum (Haliday, 1833) comb. n.

(Figs 6A–G)

Scatopse infumata Haliday, 1833: Entomol. Mag. 1: 157.
Scatopse nigripennis Meigen: Walker, 1856: Insecta britannica III: 143; Edwards 1925: Ann. appl. Biol. 12: 274; Duda 1928: Scatopsidae, Fliegen pal. Reg. 2(1)5: 31.
Colobostema nigripenne (Meigen): Cook 1974: J. nat. Hist. 8:64; Freeman 1985: Hdbk Ident. Br. Ins. 9(7):27.
Colobostema infumatum (Haliday, 1833) Haenni & Greve 1995: 78; Laurence & James 1996: Entomol. Mon. Mag. 132: 73, Figs 2–3; Krivosheina 2000: Entomol. Obozr. 79(2): 491, Figs 3(7–12); Krivosheina 2001: Int. J. Dipterol. Res. 12(2): 75, Figs 6–8, 10.
nec: *Reichertella infumata* (Haliday) sensu Enderlein 1912: Zool. Anz. 40: 272.

Type locality. Northern IRELAND, Down: Holywood.

Material examined. **Lectotype** ♂, labelled: «*fuscinervis*» [handwritten, green paper] / «Ireland» [green paper] / «Type» / «Haliday 20.2.82» / «*Colobostema nigripenne* det. P.J. Chandler».

This specimen is designated here as lectotype and I have labelled it accordingly: «*Scatopse infumata* Hal., lectotype, Haenni des. 1990» / «*Colobostema infumatum* (Hal.) det. Haenni 1990». The lectotype in fair condition is glued on a pinned card and is preserved in the NMID, Dublin.

Other material. CZECH REPUBLIC. Moravia sept.: Beskydy-Muřnkový, 49°31' N, 18°39' E, 950 m, 13.VI.1987, 1 ♂, M. Barták; Šumava-Jezerny slat, 49°02' N, 13°34' E, 980 m, 2–18.VI.1995, 4 ♂♂, M. Barták, CMB; same, 20–21.VII.1995, 1 ♂, M. Barták; MHNN; Šumava, Zhuřské slát, 1130–1140 m, dates ranging from 18.V to 21.VIII.1999, 8 ♂♂, M. Barták & Kubik, CMB and MHNN; Šumava Mts, Nova Hurka, 850–870 m, dates ranging from 18.V to 22.VII.1999, 6 ♂♂, M. Barták & Kubik, CMB and MHNN; Šumava, Horská Kvilda, 1100 m, 20.V–17.VI.1999, 1 ♂, M. Barták & Kubik, CMB; Šumava Mts, Rokytecka slát, 1100 m, dates ranging from 18.V to 22.VII.1999, 3 ♂♂, M. Barták & Kubik, CMB and MHNN.— GREAT BRITAIN. Wales: Cader Idriss, 1–3.VIII.1993, 4 ♂♂, B.R. Laurence, BMNH (Laurence & James, 1996). The following series of 24 ♂♂ and 5 ♀♀ are all labelled *Colobostema cornuta* Freeman, and include the «♂ holotype» and 3 ♂♂ and 1 ♀ «paratypes» of this unpublished species (see under 'Taxonomic remarks' below); Dyfed: Llyn Eiddwen, W.T.

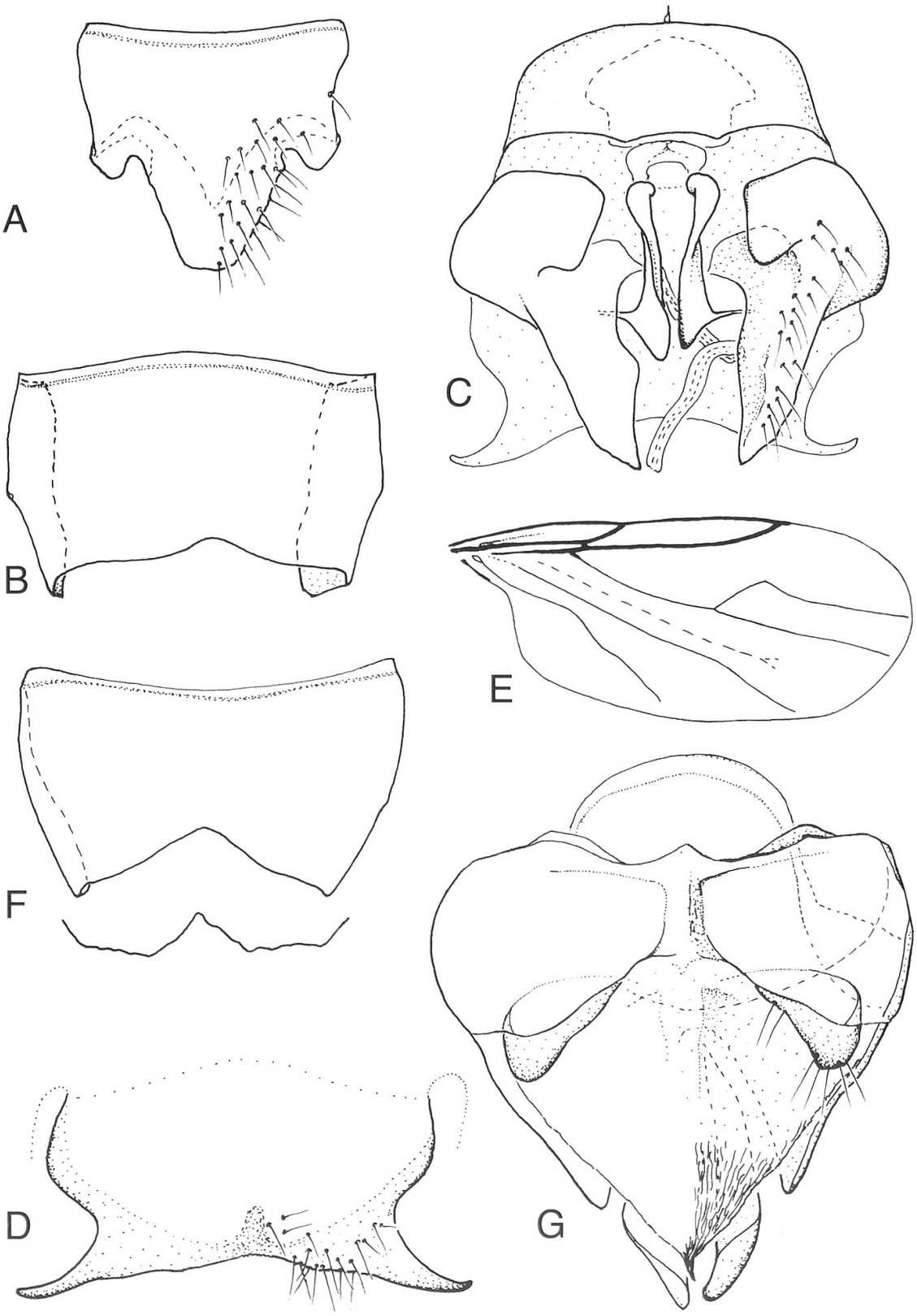

Fig. 7. *Colobostema lastovkai* sp. n.: A. Tergite 7, ♂. – B. Sternite 7, ♂. – C. Genital capsule, ♂, ventral. – D. Epandrium, distal part, ♂, dorsal. – E. Wing venation, ♂. – F. Tergite 7, ♀, with outline of another specimen (below). – G. Terminalia, ♀, with sternite 8.

SN607674, 30.VII1987, 2 ♂♂, «holotype» and «paratype»; Cors Caron, SN 685623, 27.VII.1987, 1 ♂, «paratype»; Puncheston Common, SN 005302, 20.VII.1987, 1 ♀, «paratype»; Cors Grairanos, 28.VII.1988, 1 ♂; Cwm Ystwyth SN856757, 7.X.1987, 1 ♂ «paratype»; Denbigh: Blaen y Wergloedd, SH 913633-4, 23.VI.1988, 1 ♂, 1 ♀; same, 4.VIII.1988, 2 ♂♂, 1 ♀; Gors Naen Muyrd, SH 981587, 4.VIII.1988, 3 ♂♂, 1 ♀; Montgomery: Llanbrynmair, SH 940049, 13 ♂♂, 1 ♀; Gwent: Cleddon Bog, SO 509041, 21.VII.1988, 1 ♂; all labelled W.T., in the BMNH. — NORWAY. The author has studied 14 specimens from provinces AK, HOI, RY, NTI and FØ (details in Haenni & Greve1995, 2000).— SWITZERLAND. BE: Beatenberg, 2000, 2 ♂♂, P. Duelli, CGB; GL: Klöntal, 850 m, 11–14.IX.1974, 1 ♂, G. Bächli, MHNN; Schwändital, 2000, 3 ♂♂, P. Duelli, CGB/MHNN; Le Cachot, 1050 m, 13 ♂♂, dates ranging from 1.VI to 4.VIII.1973, W. Matthey, MHNN; same, 1–11.VIII.1983, 1 ♂, Y.Basset, MHNN; same, 22.VII.1982, 1 ♂, JP Haenni, MHNN; Le Locle, Pouillerel (Le Saignolet), 11.VIII.1987, 1 ♂, JP.Haenni, MHNN; Vers Maix Rochat, 5 ♂♂, 1 ♀, dates ranging from 6.VII to 17.VIII.1992, C. Vaucher-von Ballmoos; same, 5–12.VII.1993, 1 ♂; same but 13E, 25.V–1.VI.1992, 1 ♂; Le Cachot, dates ranging from 20.VII to 17.VIII.1992, 1 ♂, 2 ♀♀, C. Vaucher-von Ballmoos; same, dates ranging from 31.V–7.VI to 14–21.VI.1993, 3 ♂♂, 1 ♀; same, 27.VII–3.VIII.1992, 1 ♀, C. Vaucher-von Ballmoos, all CCV/MHNN; SZ: Alptal, 2000, 1 ♂, P. Duelli, CGB.

Diagnosis. This species has large individuals, with typical large brownish wings, and belongs to the *nigripenne*-group, being recognized especially in males by the shape of sternite 7 (Fig. 6B), which has strongly developed postero-lateral projections, with prominent spiracles, and medially largely truncate posterior margin; the pointed gonocoxites (Fig. 6C) and the strongly asymmetrical posterior projection of the epandrium (Fig. 6D) are also characteristic of this species. The female has unique transversally wrinkled valvifers on sternite 8 (Fig. 6G).

Description. Male. 1.8 mm long; dull black in general colour, with pilosity lighter; a pair of light spots on notum posteriorly to wing bases; wings blackish-brown, with lighter zones between anterior stem vein on M_1 and apex of R_{4+5}, at the base of wing between basal part of M and CuA_2 and along vena spuria; anterior veins blackish brown, well marked, posterior veins brownish, base of wing more yellowish; halters dark, with contrasting fulvous stem; legs concolourous with body, except basal fourth or third of tibiae and tarsi lighter.

Head. Eyes separated on frons above antennae by width of anterior ocellus; antennae shorter than head and thorax together, widening apically, flagellomeres well separated, easy to count, wider than long from 4th flagellomere on, last flagellomere about twice preceding one.

Thorax quadrate, slightly wider than long; wing (Fig. 6E), 2.5 mm; no visible anteriorly directed stem of vein on M_1, which has a strongly marked bend at basal fourth; M_{1+2} about as long as medial fork.

Abdomen. Pregenital segment with a complete basal sclerotized ring; tergite 7 (Fig. 6A) with slightly asymmetrical digitiform posterior projection; sternite 7 (Fig. 6B) with strongly developed lateral projections encompassing tergite, bearing prominent spiracles; genital capsule (Fig. 6C) with pointed gonocoxites, elongate parameres, posterior process of epandrium strongly asymmetrical (Fig. 6D); aedeagus long, often strongly projecting.

Female. As male in general colour and appearance; tergite 7 with posterior margin deeply notched medially (Fig. 6F); sternite 8 bearing a pair of transversally wrinkled elongate valvifers (Fig. 6G).

Taxonomic remarks. Former authors have all accepted the synonymy of *C. infumata* with *C. nigripenne,* first established by Walker in 1856 (sec. Cook 1974). Although it is not possible to ensure with certainty the identity of the specimen in the Haliday collection considered here as the primary type (see O'Connor & Nash 1982), there are good reasons for its designation as lectotype of *Scatopse infumata* Haliday. This specimen fits well with the very short original description and is preserved as such in Haliday's collection in the National Museum of Ireland in Dublin. It belongs not to *C. nigripenne* (Meigen), but to a distinct species with very typical segment 7 and genitalia.

The specimens of *C. infumata* from Wales have been studied by Paul Freeman in 1989, who correctly recognized that they were not conspecific with *C. nigripenne* and prepared their description under the name *Colobostema cornuta* n.sp. (Freeman in litt.). However, he has retired his paper before publication in order to avoid the creation of a supplementary synonym (Freeman in litt.) and so the latter name will remain only a collection name.

Distribution. Known presently from the British Isles (Ireland, Wales) (Laurence & James 1996), Norway (Haenni & Greve 1995, 2000), Switzerland (Vaucher-von Ballmoos 1997, Haenni 1998), Finland (Krivosheina 2001), Northern Russia (Krivosheina 2000, 2001), Czech Republic (Haenni & Barták 2006). This species is probably present in the whole of Central Europe and widespread in Northern Europe.

Ecology. Estival species with a flight period extending from beginning of June to end of August. It appears to be restricted to peat-bogs in Western and Central Europe (Wales, Switzerland and Czech Republic), where these biotopes are relic.

Colobostema lastovkai sp. n.

(Figs 7A–G)

Colobostema lastovkai Haenni, 1998: Fauna Helv. 1, Diptera Checklist: 142, *nomen nudum*.

Type locality. SWITZERLAND, canton Graubünden, Swiss National Park, La Schera.

Material examined. **Holotype** ♂, labelled: «SUISSE-GR-PNS, Alp La Schera, 2100m, Nardetum, 14.VII.1980, J.-P. Haenni leg.», «S3283», «HOLOTYPE *Colobostema lastovkai* n. sp. ♂ Haenni, 1990»: the holotype is dry-preserved, micropinned in collection of MHNN, with tip of abdomen cleared and preserved in glycerine in a microvial fixed at the same pin as specimen. The holotype is in excellent condition. **Paratypes** (1 ♂, 1 ♀): 1 ♀, same date as holotype, but «S3638», preserved in alcohol, in coll. MHNN; 1 ♂, same data as holotype, but «émergence, 25.VI–4.VII.1979, M. Dethier leg.», «S3815», slide mounted, in coll. MHNN.

Other material. SWITZERLAND. GR: PNS, Il Fuorn, 1790 m, 15.VI.1980, 1 ♂, J.-P. Haenni, MHNN; same, 24–26.VII.1980, 1 ♂; same, 18.VIII.1980, 1 ♀; Nationalpark, 2000, 1 ♂, P. Duelli, CGB; Savognin, 1360 m, 17–20.VIII.1988, 1 ♂, G. Bächli, MHNN; Dischmatal, 6 ♂♂, 16–30.VI.1992, P. Brodmann, CGB/MHNN; NE: Brot-Dessous, 2–16.VI.1994, 1 ♂, S. Barbalat, MHNN; TI:

Campra di Là (Olivone), 1425 m, 23.V–1.VI.1994, 2 ♂♂, L. Pollini, MHNN; Angone / Anzonico, 1550 m, 21–31.VIII.1981, 1 ♂, G. Bächli, MHNN; Lucomagno, 8.VIII.1997,1 ♂, G. Bächli, MHNN; VD: La Dôle, 1500 m, 26.VII.2004, 1 ♂, G. Bächli, CGB; VS: Morgins, Portes du Soleil, 27.VII.2004, 1 ♂, G. Bächli, CGB.— AUSTRIA. No specimen examined, but a drawing of the terminalia of a male specimen from «Austr. Alps» clearly belonging to this species was submitted to the author by Petr Laštovka (Laštovka in litt.)

Diagnosis. *C. lastovkai* belongs to the *nigripenne* group of species, with posterior margin of tergite 7 in male bearing a large median projection, surrounded by smaller angular lateral lobes. In *C. lastovkai* the median projection is triangular-trapezoidal, appearing truncate apically (Fig. 7A), in contrast to *C. griseinerve*, *C. infumatum*, and *C. nigripenne*, where this projection is more rounded and the lateral lobes differently shaped (care should be exercised with this character, since distinction may be difficult to appreciate in some cases). Additional characters are found in the shape of the aedeagus, characteristically contorted in *C. lastovkai* (Fig. 7C), and the shape of the epandrium, with elongate transverse pointed lobes (Fig. 7D). The female has a notched posterior margin of tergite 7 (Fig. 7F) and short and plump valvifers on sternite 8 (Fig. 7G).

Description. Male. About 2 mm long, dull brownish black, except katepisternum and meron shining; base of first antennal flagellomere usually light coloured; a pair of light spots on posterior corners of notum; wings slightly iridescent, slightly tinged with grey-brownish, darker in cells c and sc; anterior veins brown, posterior light brown, contrasting with membrane; halter with brownish stem, hardly contrasting with darker knob. Legs entirely dark except base of tibiae slightly contrasting. Light brown pilosity comparatively dense and elongated.

Head. Antennae shorter than length of head and thorax, widening apically, flagellomeres close together, with first flagellomere longer than wide, other flagellomeres wider than long, last flagellomere about as long as preceding two. Eyes widely separated on frons above antennae, by width of anterior ocellus.

Thorax. Notum slightly wider than long. Wing (Fig. 7E), 2.0–2.6 mm long. Membrane covered with coarse microtrichosity; M_1 with a well-marked angle, stem of vein anteriorly directed, hardly visible; M_{1+2} only slightly shorter than medial fork.

Abdomen. Tergite 7 with a large posterior median projection, triangular or trapezoidal, surrounded by a pair of short angular lobes (Fig. 7A). Sternite 7 with a shallow V-shaped posterior emargination (Fig. 7B). Genital capsule (Fig. 7C) rather broad, angular with pointed gonocoxites appearing blunt according to the angle of view, parameres blunt apically, aedeagus contorted, epandrium with laterally directed, pointed paired projections (Fig. 7D).

Female. Description lacunary due to the bad state of preservation of the few females known with certainty. The attribution of one of these specimens (GR: La Schera) to *C. lastovkai* is, however, certain: it was made possible because of the presence of the very typical terminal portion of the penis of this species, found accidentally broken in the reproductory ducts of this female, made evident by the clearing of the specimen in potash; tergite 7 with posterior margin notched medially (Fig. 7F); sternite 8 bearing a pair of basally widened, short and plump valvifers (Fig. 7G).

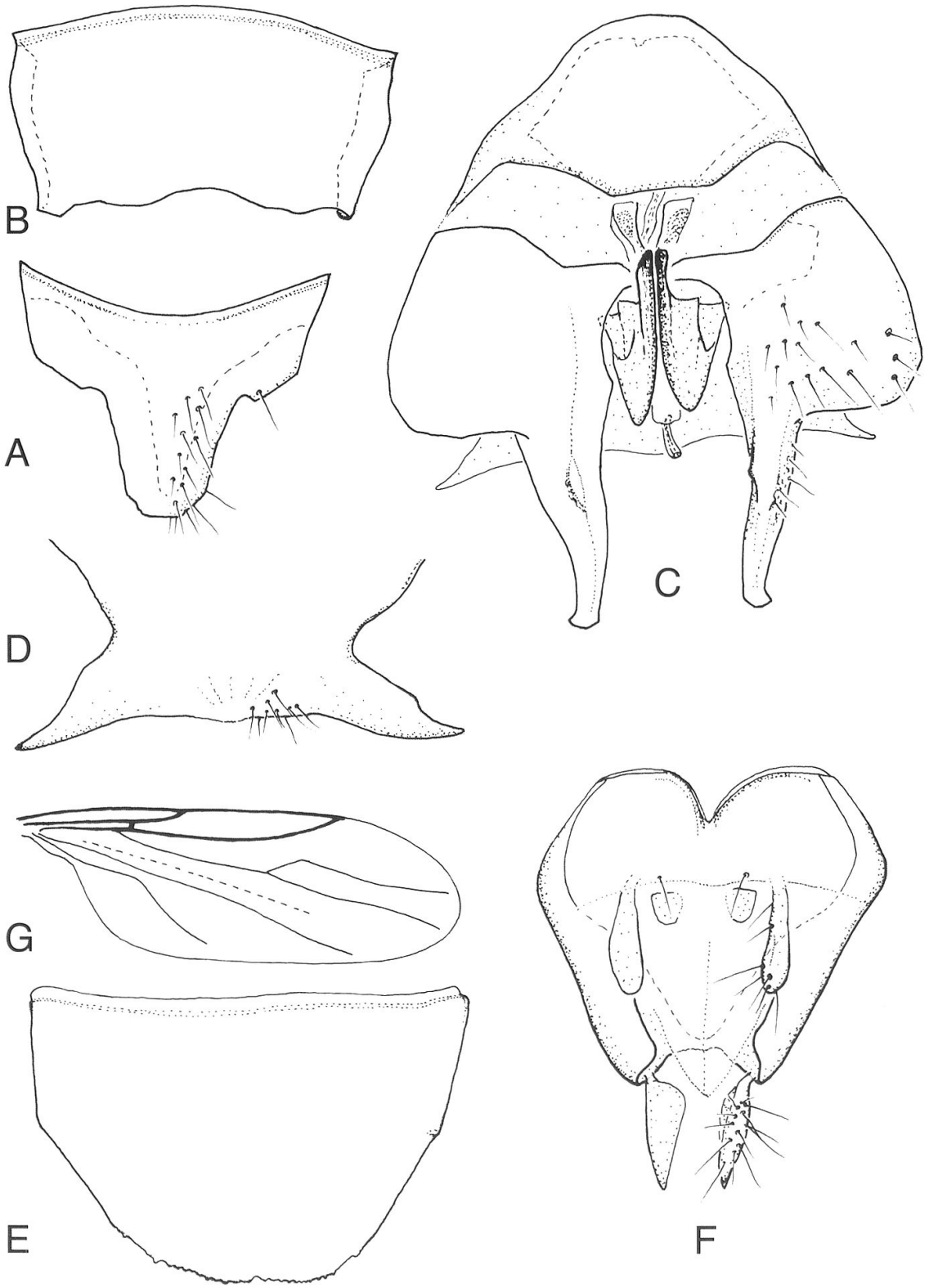

Fig. 8. *Colobostema nigripenne* (Meigen): A. Tergite 7, ♂. – B. Sternite 7, ♂. – C. Genital capsule, ♂, ventral. – D. Epandrium, distal part, ♂, dorsal. – E. Tergite 7, ♀. – F. Sternite 8, ♀ – G. Wing venation, ♀.

Taxonomic remarks. The quotation of *C. lastovkai* in Haenni (1998) must be considered as *nomen nudum* (see above *Colobostema auberti* sp. n., 'Taxonomic remarks').

Distribution. Known only from a dozen localities in the Alps and Jura mountains of Switzerland, but apparently also present in the Alps of Austria (see above).

Ecology. *C. lastovkai* is a montainous species caught at altitudes ranging from 890 to 2100 m in various biotopes, including alpine meadow, pine forest and peat-bog. The flight period extends from second half of May until end of August.

Derivation of name. The new species is named in memory of the late Petr Laštovka, distinguished Czech dipterist, who first recognized this taxon as distinct.

Colobostema nigripenne (Meigen, 1830)

(Figs 8A–G)

Scatopse nigripennis Meigen, 1830: Syst. Beschr. 6: 314.
Scatopse annulipes von Roser, 1840: CorrespBl. württ. landw. Ver. Stuttg. 17(1): 52.
Scatopse bureschiana Enderlein, 1926: Zool. Anz. 68(5/6): 137.
Scatopse nigripennis Meigen, 1830: Duda, 1928: Fliegen pal Reg. 2(1)5:31, Figs 30a–b, Pl. 1, Fig. 8; Krivosheina, 1969: Opred. nasekom. Evrop. chast. SSSR 5(1–2): 422, Fig. 243(3); Krivosheina, 1989: Keys Ins. Europ. Part SSSR 5(1): 650, Fig. 243(3).
Colobostema nigripenne (Meigen, 1830): Cook 1956: Ann. Entomol. Soc. Amer. 49(4): 328, Figs 1B, 2B; Cook 1974: J. nat. Hist. 8: 64, Figs 3, 73–74, 76; Freeman 1985: Hdbk Ident. Br. Insects 9(7): 39, Figs 129–131; Krivosheina & Haenni 1986: Cat. pal. Dipt. 4: 305; Krivosheina 2000: Entomol. Obozr. 79(2): 491, Figs 1(2), 2(4), 4(1–5); Krivosheina 2001: Int. J. Dipt. Res. 12(2): 75.
Colobostema stackelbergi Krivosheina, 2000: Entomol. Obozr. 79(2): 487, Figs 1(1), 2 (3, 6–11). **Syn. n.**

Type locality. Not given [GERMANY].

Material examined. **Holotype** ♀, labelled: «TYPE» / «*nigripennis* ♂(?)» / «Meigen», «687 40» [round label, written on both sides]; type in rather poor condition (colour faded, notum partly destroyed by the pin, marks of *Anthrenus* frass: flagellar segments of antennae, most of right wing, halters, one mid leg, posterior legs and abdomen lacking), pinned, in collection MNHN Paris.

Other material. AUSTRIA. Osttirol: Lienz (Umgebung Kreith), 26.V.1989, 1 ♂, A. Kofler, CAK; Styria: Admont, 3275, 25.VI, 2 ♂♂, Strobl, CGS Admont («*tristis* Z. v. *obscuritarsis* Strobl det.», so called type of this variety according to Morge 1974 (one is labelled by Morge «Typen Exemplar n°3275 rev. G. Morge 1959»), but this is obviously not the case, see discussion under this species).— BELGIUM. Waerschoot, 14.VI.1931, 1 ♂, M. Goetghebuer, RISNB («*Scatopse tristis* Zett. det. M. Goetghebuer»).— BULGARIA. Rila Geb. Britschebor, 1500 m, 6.VI.1921, 1 ♂, G. Enderlein, MNHUB Berlin (Type of *bureschiana* Enderlein).— CZECH REPUBLIC. Beskydy, Muřnkový, 950 m, 13.VI.1987, 1 ♂; Chroustovice, 200 m, 21.VI.1989, 1 ♂; Horské Kvilda, 1000 m, 21.VII.1992, 1 ♂; Hrcava (1 km E), 550 m, 22.VIII.1987, 1 ♂; Kostelec env., 16.V.1992, 1 ♂; Kostelni Lhota, 190 m, 12.V.1988, 3 ♂♂; Kunice-Praha, 30.V.1993, 1 ♂; Kunice-Vrchy, 380 m, 5.VI.1988, 1 ♂; Nova Ranyne, 330 m, 10.VI.1987, 1 ♂; Praha-Kunice, 30.VI.1992, 1 ♂; Šumava Plechy, 1050 m, 22.VII.1992, 2 ♂♂; Šumava-Spalenec, 800 m, 10.VI.1989, 1 ♂; Šumava-Spicacké Sedlo, 900 m, 20.VIII.1989, 1 ♂; Šumava, Borová Lada, 910 m, 4.VI.1996, 1 ♂; Šumava , Hranični slát, 1170 m, 4.VI.1996, 1 ♂; Šumava, Malá Niva, 750 m, 16.VI.1997, 1 ♂; Šumava , Rokytecka slát, 1100

m, 18.V–18.VI.1999, 1 ♂; same, 16.VI–21.VII.1999, 1 ♂; Šumava, Horská Kvilda, 1130 m, 21.VII–21.VIII.1999, 1 ♂; Vracoc, 200 m, 16.V.1990, 1 ♂; Vraž u Pisku, 400 m, 31.V.1994, 1 ♂; same, 1.VI.1994, 1 ♂; same, 27.V–2.VI.1996, 1 ♂; all M. Barták, CMB Prague and MHNN; Podyjí NP: 1.5km SW of Havraniky, 340 m, 27.V–7.VI.2001, 1 ♂; same, 29.VIII–28.IX.2001, 1 ♂; Liščí skála, 420 m, 27.V–7.VI.2001, 1 ♂; same, 21.V–12.VI.2004, 1 ♂; Braitava, dates ranging from 26.III–13.V to 30–31.VII.2002 and from 29.IV–21.V to 12.VI–2.VII.2004, 12 ♂♂; Terasy, 460 m, dates ranging from 20.IV–3.V to 2.VII–9.VIII.2003, 6 ♂♂; nad Sóbesem, 340 m, 3.V–2.VI.2003, 1 ♂; Devét mlýnů, 270 m, 21.V–12.VI.2004, 2 ♂♂, all M. Barták & Kubik, CMB. The author has studied 28 additional specimens from the Bilina-Duchcov area (Haenni & Barták 2000) and from Podyjí National Park (Haenni *et al.* 2005). — FRANCE. Alpes-Maritimes: Lantosque (W Col de Turini), 860 m, 12.VI.1994, 1 ♂, J.-P. Haenni, MHNN; Aveyron: Cornus (La Fageole), 800 m, 21.VII.1996, 1 ♂, J.-P. Haenni, MHNN; Charente-Maritime: Saint-Fort-sur-Gironde, 27.V–22.VII.2001, 1 ♂, K. Dierks, CDD; Hérault: Mont-Caroux, Espinouse, Plo de Flamboyau, 1.VI.1999, 1 ♂, T. Noblecourt, INRAM; Indre-et-Loire: La Roche-Clermault, 20.IV.1995, 1 ♂; same, 6.V.1995, 1 ♂, 1 ♀; same, 2.VI.1995, 1 ♀; same, 20.VII.1995, 1 ♂; same, 29.VIII.1995, 1 ♀, all C. Cocquempot, INRAM; Vosges: St Maurice-sur-Moselle (Plain du Canon), dates ranging from 18.V to 5.VII.1999, 3 ♂♂, 3 ♀♀, C. Cocquempot, MHNN (Haenni & Withers 2007).— GERMANY. Württemberg, 1872-75, 1 ♂, v. Roser, MNKS Stuttgart (type of *annulipes* von Roser); Baden-Württemberg: Kaiserstuhl, Schelingen, 28.V.2011, 1 ♂? J-P. Haenni, MHNN; Kaiserstuhl, Oberbergen, 330 m, 11 ♂♂, J.-P. Haenni, MHNN; Stuttgart, 18.IV.[19]15, 1 ♂, A.v.d. Trappen, MNKS ; Titisee, VII.1925, 1 ♂, F.W. Edwards, BMNH. Bayern: Bayerischer Wald, Spiegelau (3 km N), 760 m, 8.VI.1995, 1 ♂. Nordrhein-Westfalen: Köln (Dünnwald), 3–9.V.1989, 2 ♂♂; same, 17–23.V.1989, 1 ♀; same, 24–30.V.1989, 1 ♀; same, 21–27.VI.1989, 1 ♂; same, 5–11.VII.1989, 1 ♀; same, 12–18.VII.1989, 1 ♂; same, 19–25.VII.1989, 2 ♂♂, all J. Wehlitz, CUB. Schleswig-Holstein: Bornhöved, 18.VII–1.VIII.1989, 1 ♂, D. Werner, CDW. Thüringen: Thüringer Wald, Schnellbach (Weidmannsruh), 17.VIII–1.IX.1997, 1 ♀, R. Bellstedt, MNG.— GREAT-BRITAIN. ENGLAND. «a. England», 1 ♀, («*Scatopse infumata* Haliday» and «*Scatopse nigripennis* Mg. det. F.W. Edwards»); Sugar Loaf S. Folkstone, 2.VIII.1974, 1 ♂; Berks: Silwood Pk. Broom, 6.IX.1965, 1 ♂, O.W. Richards (placed under *C. nigripenne*); Bucks: Burnham Beeches, 19.VI.1932, 2 ♂♂, O.W. Richards; Hants: New Forest, VI.1902, 1 ♂, D. Sharp («*Colobostema nigripenne* Mg.» det. E.F. Cook); Oxon: Waterferry Wood, 5.V.1940, 2 ♂♂, F.W. Edwards (placed under *C. nigripenne*); Yorks: Grassington, 22.V.1927, 1 ♂, F.W. Edwards; Fritham NF, 17.VI.1953, 1 ♂, C.N. Colyer; SCOTLAND. Aberdeens: Loch Callater, 28–29.VII.1937, 2 ♂♂, 1 ♀, R.L. Coe («*Colobostema nigripennis* Mg. det. E.F. Cook 1966»); WALES. Gwynned: Anglesey, Tre Wilmot, 27.VII.1988, 1 ♂, 1 ♀, (identified «*C. nigripenne* (Meigen)»), all BMNH. — MONTENEGRO. Durmitor, 1500 m, 30.VII–5.VIII.1988, 3 ♂♂, G. Bächli, CGB.— NETHERLANDS. Hilversum, VIII.1901, 1 ♂, De Meijere; «Nederland» [no other data], 1 ♂, De Meijere; [unreadable locality], 15.VI.1928, 1 ♂, De Meijere, all «*Colobostema nigripenne* (Meigen, 1830) det. P.L.Th. Beuk 1993», ZMAS.— NORWAY. BV: Ål, Störeteigen, 21.V–19.VI.2000, 2 ♂♂, 1 ♀, J. Skartveit, M. Fremmersvik & R. Elling-

sen, ZMUB. The author has studied 41 specimens from provinces Ø, AK, OS, BV, AAY, VAY, RY, HOI, HOY and SFI (detail of records in Haenni & Greve 1995, 2000); TEY: Drangdal, Skulltrevassøsen Nature Reserve, 18.VII–3.X.2006, 1 ♂, S. Kobro, ZMUB.— POLAND. Roztocze National Park, 29.V–16.VI.1987, 1 ♂; same, 7–31.VIII.1987, 1 ♂, both W. Mikołajczyk, PANW.— RUSSIA. Serpuchov (15 km E), 27.V.1989, 2 ♂♂, M. Barták, CMB; Skorotovo, 30.V.1989, 1 ♂, M. Barták, CMB; Moscow-Orechovo, 23.V.1987, 1 ♂, M. Barták, CMB. — SLOVAKIA. Pol'ana BR, Vrchslatina, 910 m, 11.VI.1999, 1 ♂, J. Martinovský, MHNN; Pol'ana BR, Hrončesky Grúň res., 15.V.2008, 1 ♂, J. Rohaček, SZM (Haenni 2009).— SLOVENIA. Near Kočevje, Forest Reserve Rajhenavski Rog, 900 m, 27.VI.1999, 1 ♂, A. Floren, MHNN.— SWEDEN. Jönköping: Skillingaryd, 27.VI.1981, 1 ♂, J.-P. Haenni, MHNN.— SWITZERLAND. AG: Rottenschwil, 14.VI.2008, 1 ♂, G. Bächli, CGB; Würenlingen, 420–520 m, 6–11.VI.1973, 1 ♂, G. Bächli, CGB; BE: Beatenberg, 2000, 2 ♂♂, P. Duelli, CGB; BE/SO: Limpach, 28.V.1987, 1 ♂, P. Duelli, MHNN; BL: Bubendorf, NSG Wildenstein, dates ranging from 15–22.VI to 3–10.VIII.2000, 20 ♂♂, all M. Wolf, CGB; FR: Font, 9–13.V.1994, 1 ♂, 1 ♀; same, 28.VIII–2.IX.1994, 1 ♂, all A. Gander, CAD; GE: Chancy, 25.VII.2004, 1 ♂, G. Bächli, CGB. Russin: Allondon, 8.VII.2002, 2 ♂♂, J.-P. Haenni & B. Merz, MHNN. GL: Richisau, 7–8.VIII.1991, 1 ♂, G. Bächli, CGB; GR: Sur (Pale Rodonda), 1860 m, 3.VI.2000, 1 ♂, C. Dufour, MHNN; Sur, 1600 m, 3.VI.2000, 1 ♂, G. Bächli, MHNN; Dischmatal, 16–30.VI.1990, 1 ♂, P. Brodmann, CGB; Lautsch, 2000 m, 1 ♂, P. Duelli, CGB; JU: Chevenez (Combe Ronde), 475 m, 7–21.VI.1988, 1 ♂, Y. Gonseth, MHNN; Delémont, 500–680 m, 2–6.VIII.1974, 2 ♂♂, G. Bächli, CGB; LU: Sursee, 13.VI.2004, 1 ♂, L. Reser, CGB; Dierikon, 2000 m, 3 ♂♂, P. Duelli, CGB; NE: Chambrelien (Gare), 680 m, 26.V.1988, 1 ♂, J.-P. Haenni, MHNN; Les Bayards, 980 m, 21.VI.1986, 1 ♂, J.-P. Haenni, MHNN; Villiers, La Dame, 1270 m, 31.VI.1995, 1 ♂, C. Dufour, MHNN; Neuchâtel (Fontaine-André), 630 m, 5.VII.2002, 1 ♂, J.-P. Haenni, MHNN; SH: Neunkirch, 2000, 1 ♂, P. Duelli, CGB; SZ: Alptal, 2000 m, 1 ♂, P. Duelli, CGB; TI: Corzonesco, 17–20.VII.1998, 2 ♂♂, G. Bächli, CGB and MHNN; Someo, 25–29.VII.1997, 1 ♂, G. Bächli & Haring, CGB; Acquacalda, 22–24.VI.2001, 1 ♂, G. Bächli, CGB; Monte san Giorgio, Merdie-Cassida, 580–900 m, 17.V.2006, 1 ♂, B. Merz, MHNG; Locarno env., (Locarno, Gordola), dates ranging from 3.IV to 2.IX.1997, 15 ♂♂, 17 ♀♀, M. Moretti, MSNL/MHNN (detail of captures in Haenni & Moretti in prep.); VD: Cudrefin (Bois de Ville), 480 m, 22.VIII.1982, 2 ♂♂, J.-P. Haenni, MHNN; Bois de Chênes, 21.VII.1970, 1 ♂, J. Aubert, MZL; VS: Salgesch, Bois de Finges, 540m, 17.VI.1997, 3 ♂♂, 3 ♀♀, J.-P. Haenni, MHNN; Pfynwald, 2–5.VIII.1999, 3 ♂♂, G. Bächli, CGB and MHNN; same, 580 m, 30.VI–4.VII.2001, 2 ♂♂, G. Bächli, CGB; Visperterminen, 2.VIII.1990, 1 ♂, B. Merz ♀ G. Bächli, CGB; Morgins, Portes du Soleil, 27.VII.2004, 1 ♂, G. Bächli, CGB; ZH: Dietikon, 390 m, 3–10.VIII.1984, 1 ♂; same, 14–19.VII.1988, 1 ♂; same, 4–8.IX.1988, 1 ♂; same, 18–22.VII.1991, 1 ♂; same, 16–20.VII.1992, 3 ♂♂; same, 14–18.VII.1995, 1 ♂; same, 13–17.VII.1996, 5 ♂♂, 1 ♀; all G. Bächli, CGB; Hönggerberg, 520 m, 19–23.VII.1990, 1 ♂; same, 18–22.VII.1991, 2 ♂♂; same, 16–20.VII.1992, 2 ♂♂, same, 13–17.VII.1996, 3 ♂♂, 1 ♀; same, 3–7.VII.1998, 2 ♂♂; all G. Bächli, CGB and MHNN; Katzensee, 440 m, 23.VII.1991, 1 ♂, G. Bächli, CGB; Marthalen, 8.VI.2008, 2 ♂♂, G. Bächli, CGB; Wädenswil,

12.VI.1980, 1 ♂, C. Dufour & W. Geiger, MHNN; Zürich, 450 m, 1–13.VI.1986, 1 ♂, G. Bächli, CGB; Sihlwald, dates ranging from 25.IV–23.V.1996 to 15.VIII–12.IX.1996, 22 ♂♂, 26 ♀♀, K. Schiegg, ETHZ and MHNN; same, dates ranging from 22.V–20.VI to 16.VIII–12.IX.1997, 8 ♂♂, 17 ♀♀, K. Schiegg, MHNN.

Diagnosis. Males of *C. nigripenne* can be separated from those of other species of the group based on the rounded median posterior projection of tergite 7, by the peculiar shape of the gonocoxites, broad basally, strongly narrowed in the apical part, with apex angled outwards (Fig. 8C); the projection of tergite 7 is long, apically rounded when seen from above, but may appear more angular seen from below due to the presence of small lateral teeth directed ventrally; the lateral projections of the tergite are not developed or hardly so in this species (Fig. 8A); the shape of the aedeagus, short and arched (Fig. 8C), is also characteristic. In females, the posterior margin of tergite 7 is entire, valvifers are elongate, widened apically, and a pair of additional submedian basal sclerites are present (Fig. 8F).

Description. 1.8–2.5 mm long; dull black in general colour except katepisternum, meron and mediotergite bare, shining black; pilosity brownish; posterior calli of thorax contrasting yellow (but may also be concolourous with rest of notum); antennae entirely black except basal third of first flagellomere more or less contrasting yellowish; wing membrane tinged blackish, except extreme base brownish yellow, costal cell darker, blackish-brown and presence of a lighter, crescent-shaped area above angle of M_1; veins blackish-brown, contrasting with membrane; legs black except basal half and apex of fore and mid tibiae, and basal third of hind tibiae yellowish brown.

Head. Eyes not approximated on frons above antennae, separated by about width of anterior ocellus or nearly so; antennae somewhat clavate, slightly widening towards apex, elongate, about as long as head and thorax together; flagellomeres well separated, 1 longer than wide, 2 about as long as wide, 3 and following wider than long, last one shorter than preceding two together.

Thorax. Notum square, practically as long as wide; wing (Fig. 8G) 2.5–3.0 mm long, covered with dense microtrichosity; anteriorly directed stem of M_1 short but usually apparent; M_{1+2} about as long as medial fork.

Abdomen. Tergite 7 (Fig. 8A) with a large, elongated median posterior projection devoid of lateral lobes, its apex rounded seen from above (but appearing more or less angular when seen from below or laterally, due to presence of a pair of minute lateral teeth); triangular elongated central dorsal area of tergite pollinose, shiny laterally; sternite 7 (Fig. 8B) shallowly emarginate medially on posterior margin; genital capsule (Fig. 8C) with gonocoxites broad at base, abruptly narrowed into a pair of elongated, apically somewhat outwardly angled posterior projections, parameres blunt apically, aedeagus rather short, thick basally, abruptly narrowing and characteristically arched in apical third, epandrium (Fig. 8D) with symmetrical, laterally pointed, acute posterior projections.

Female. As male in general colour and appearance; tergite 7 with posterior margin entire (Fig. 8E); valvifers on sternite 8 elongate, widened preapically, rounded at apex; a pair of weakly sclerotized submedian basal sclerites (Fig. 8F).

Taxonomic remarks. The type of *Scatopse nigripennis* Meigen in MHNN Paris, already redescribed by Duda (1928), has been studied. Although in rather poor

condition, it agrees with the concept of the species by subsequent authors and also with the drawing of the species by Meigen himself (see Morge 1975, Taf. CLXXXV Fig. 4).

A male type of *Scatopse annulipes* von Roser, 1840 described from Württemberg (Germany) in coll. MNKS Stuttgart has been reexamined and found to be conspecific with *C. nigripenne*, as already stated by Duda (1928).

The type of *Scatopse bureschiana* Enderlein, 1926 in MNHUB Berlin has been reexamined: this male specimen is clearly conspecific with *C. nigripenne*, as already stated by Cook (1974).

Synonymy of *C. stackelbergi* Krivosheina, 2000: according to the original description and drawings, *C. stackelbergi* (known only from one specimen from Russia, Leningradskaïa obl., Pojdestveno) appears to be extremely close to *C. nigripenne*, from which it may be distinguished according to Krivosheina (2000) by the shape of tergite 7, with a median posterior projection more elongated and acute posterior angles. Comparison of the drawings of *C. stackelbergi* with those of *C. nigripenne* in the same paper by Krivosheina (2000) clearly show extremely tiny differences between them. In my opinion, these differences fall into the specific variation of *C. nigripenne*, as can be seen by other aberrant specimens examined. For example, a male caught by the author in Skillingaryd (Sweden) has a very aberrant tergite 7 (posterior projection elongated, parallel-sided, rounded apically), but an absolutely normal genital capsule; on the other hand, another male caught in Cudrefin (Switzerland) has a nearly normal tergite 7 (though slightly more elongated and angular at tip than usual), while the genital capsule strongly resembles that of *C. stackelbergi* as drawn by Krivosheina (2000). Unfortunately, it was not possible to examine the type since this unique specimen was not found in the collection of ZNI in St. Petersburg (Nartshuk in litt.). Although quite reluctantly without type examination, I consider *C. stackelbergi* a junior synonym of *C. nigripenne*.

Distribution. *C. nigripenne* has been recorded from England Cook (1956), Finland, Sweden, Germany, Poland, Bulgaria, Britain and also Tunisia (Cook 1974), Sweden (Andersson 1982), Hungary (Papp 1983, 1993), Norway (Haenni & Greve 1995, 2000), Germany (Schacht 1997), Finland (Krivosheina 2000), Russia (Krivosheina 2000, partly under the junior synonym name *C. stackelbergi*; Krivosheina 2001: Carelia, locality erroneously assigned to Finland), France (Withers 2004, Haenni & Withers 2007), Czech Republic (Martinovský 1997, Haenni & Barták 2000, Haenni et al. 2005), Slovakia (Kozánek & Roller 1997, Martinovský 1997, Haenni 2009), Switzerland (Haenni 1986), Germany (Haenni 1999, 2011), Netherlands (Beuk 2002). It is widespread in Europe, from Great Britain to Bulgaria and Russia, and from Montenegro to Norway and Finland. The above-mentioned occurences in Montenegro and Slovenia are new records for these countries.

Ecology. This is the most common species of the genus in Europe. It has been collected in various environments, including open, semi-open or forested biotopes at altitudes ranging from near sea-level to about 2000 m in the Alps. The flight-period extends from end of March to beginning of September. *C. nigripenne* is considered by O'Toole (1978) as a myrmecophilous species scavenging in nests of *Lasius fuliginosus* and *Formica rufa* in the British Isles. In Sweden, it has been caught by Andersson (1982) in the vicinity of *Formica* mounds.

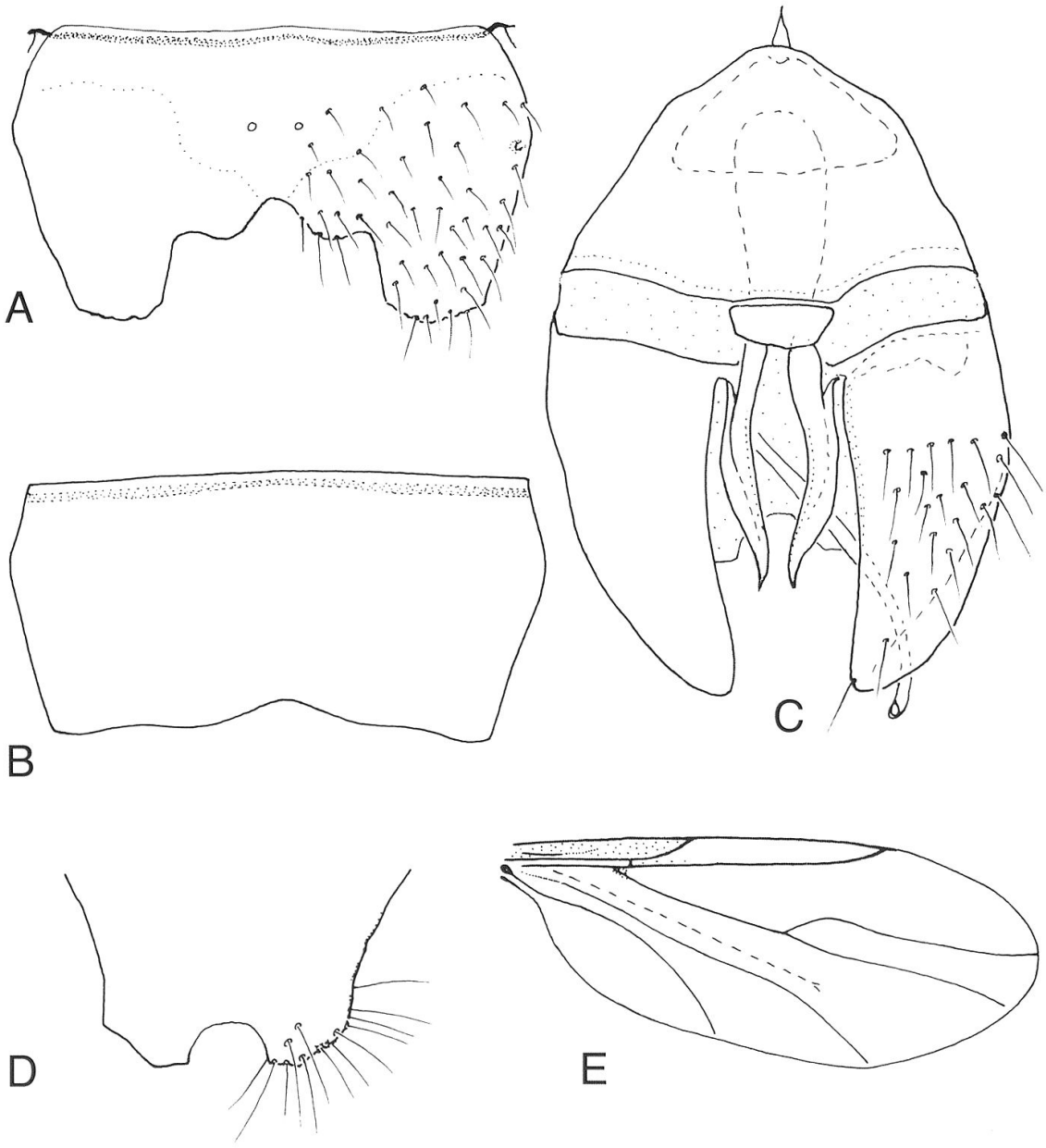

Fig. 9. *Colobostema obscuritarse* (Strobl): A. Tergite 7, ♂. – B. Sternite 7, ♂. – C. Genital capsule, ♂, ventral. – D. Epandrium, distal part, ♂, dorsal. – E. Wing venation, ♂.

Colobostema obscuritarse (Strobl, 1898) comb. n.

(Figs 9A–E)

Scatopse tristis Z. var. *obscuritarsis* Strobl, 1898a: Mitt. naturw. Ver. Steiermark 34(1897): 277. Duda 1928: Scatopsidae, Fliegen pal. Reg. 2(1)5: 39.

Type locality. AUSTRIA, Steiermark: vicinity of Admont (Naterriegel).

Material examined. **Holotype** ♂ labelled: «*Scat. tristis* Z. v. *obscuritarsis* m ♀ 15/6 97 Styriae alp Strobl» [in Strobl's handwriting until date; an additional sign in Strobl's own stenotypic writing cannot be decyphered]; I have labelled it: «*Sca-*

topse tristis Z. v. *obscuritarsis* Strobl Holotype ♂ rev. Haenni, 1990» / «*Colobostema obscuritarse* (Strobl) comb. nov. Haenni 1990». Type pinned, in good condition, preserved in the NHMA, Admont.

Other material. CZECH REPUBLIC. Šumava, Horská Kvilda, 1130 m, 20.V–17.VI.1999, 2 ♂♂, M. Barták & Kubik, CMB and MHNN; same, 21.VII–21.VIII.1999, 1 ♂, CMB; Šumava, Rokytecka slát, 1100 m, dates ranging from 18.V–16.VI to 21.VII–20.VIII.1999, 3 ♂♂, M. Barták & Kubik, CMB and MHNN; Podyjí NP: Braitava letohr., 520 m, 13.V–1.VI.2002, 1 ♂, M. Barták & Kubik, CMB (Haenni & al. 2005).— FRANCE. Pyrénées-Orientales: Matemale (Forêt de la Matte), 21.VI.1999, 1 ♂, P. Vacher, MHNN. Vosges: St Maurice sur Moselle (Plain du Canon), 26.V.1999, 1 ♂, T. Noblecourt, MHNN; same, 14.VI.1999, 1 ♂, INRAM (Haenni & Withers 2007).— NORWAY. BØ: Drammen, Underlia, V.1994, 1 ♂, L.O. Hansen, ZMB (Haenni & Greve 2000).— SWITZERLAND. GR: Val S-charl (Plan de la Graida), 1570 m, 13.VI.1980, 1 ♂, J.-P. Haenni, MHNN; Sur, 1600 m, 3.VI.2000, 1 ♂, G. Bächli, MHNN; Dischmatal, 16–30.VI.1990, 8 ♂♂, P. Brodmann, CGB and MHNN; Marmorera, 1600 m, 2.VI.2000, 2 ♂♂, G. Bächli, MHNN.

Diagnosis. Males readily recognizable by shape of tergite 7 (Fig. 9A), with deeply emarginate posterior margin, unique among European species. The shape of the genital capsule (Fig. 9C) and the symmetrical, apically broadly truncate, weakly sclerotized posterior projections of the epandrium (Fig. 9D) are also very distinctive. The Nearctic *C. arizonense* Cook, 1956 shows a similar tergite 7, but clearly differs in shape of gonocoxites and epandrium.

Description. Male. 1.7 mm long; dull black in general colour, with a dense brown pilosity; notum slightly tinged, dark brown at the posterior edge of the humeral calli and a pair of small inconspicuous light spots posterior to wing base on notum; wings greyish, costal cell darker brownish, fore veins brown, hind veins greyish, somewhat darker than membrane; halters dark brown with fulvous stem; legs concolourous with body except for lighter basal third of all tibiae, apex of fore and extreme apex of middle tibiae; tarsi brownish black dorsally, brownish yellow ventrally.

Head. Eyes largely separated on frons above antennae (about 2 ommatidia width); antennae widened towards apex, antennal flagellomeres conical, broadly separated and easy to count, wider than long from the second flagellomere.

Thorax obviously longer than wide; wing (Fig. 9E), 2.2 mm long, covered with dense microtrichosity; no anteriorly directed stem of vein on M_1, medial fork distinctly longer than stem.

Abdomen. Pregenital segment with complete sclerotized basal ring; posterior margin of tergite 7 (Fig. 9A) concave, with a complex emargination; posterior margin of sternite 7 shallowly emarginate (Fig. 9B); genital capsule oval, with simple, large gonocoxites (Fig. 9C), parameres pointed, aedeagus long, slender, epandrium with weakly sclerotized, symmetrical bilobed posterior projection (Fig. 9D).

Female unknown.

Taxonomic remarks. See discussion under *C. flavimanum* concerning the reasons for the elevation of the «variety» name of Strobl at the species level.

There is no doubt that the specimen considered here as holotype is the true type of *C. obscuritarsis* Strobl. It fits well with the original description and the indications of the original label also agree with it, including the date of capture. The

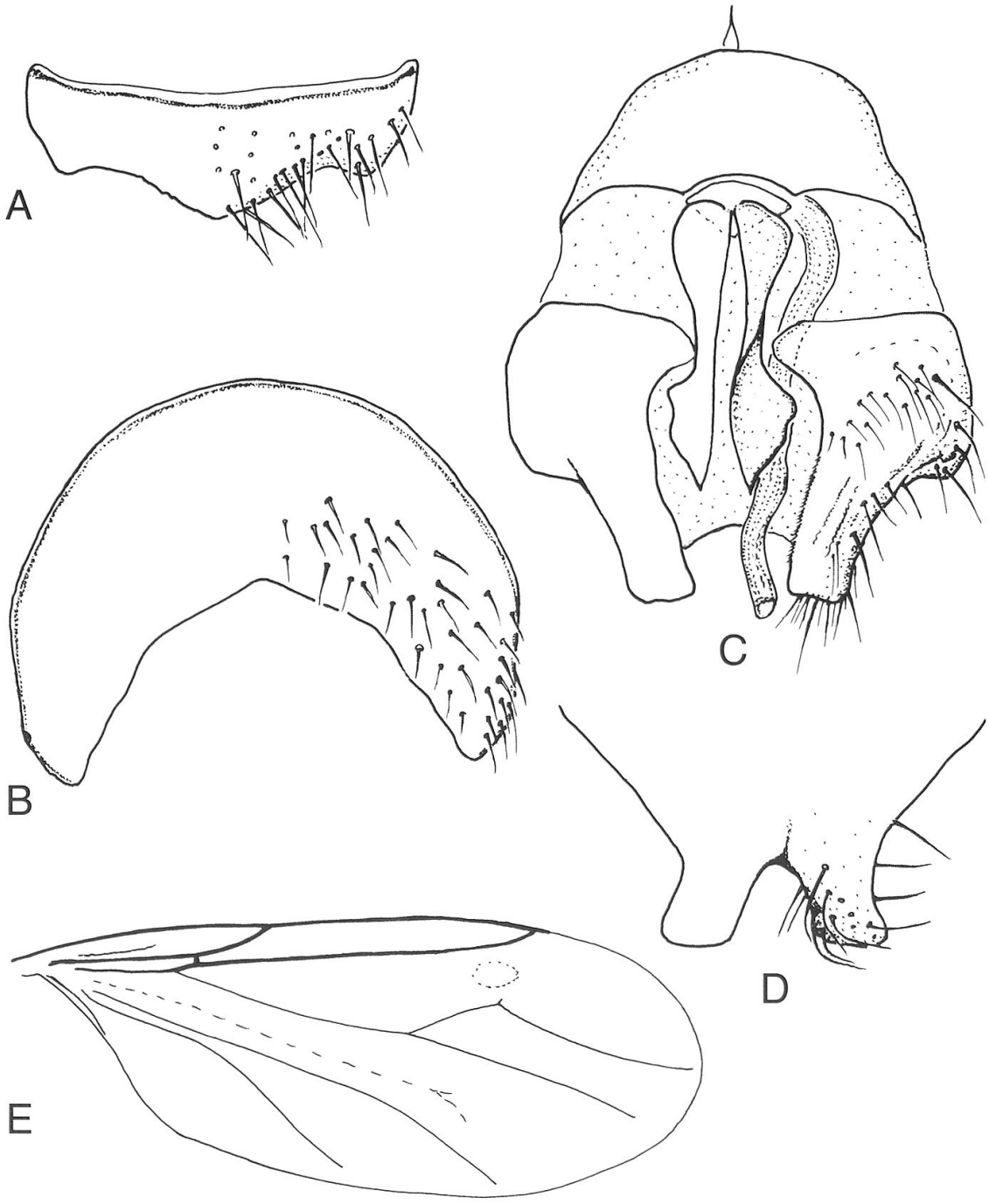

Fig. 10. *Colobostema schertenleibi* sp. n.: A. Tergite 7, ♂. – B. Sternite 7, ♂. – C. Genital capsule, ♂, ventral. – D. Epandrium, distal part, ♂, dorsal. – E. Wing venation, ♂.

holotype is a male, not a female, as believed by Strobl, but his confusion is easy to understand as this species has a very peculiar, strongly concave tergite 7, instead of convex as in most other congeneric species, making it superficially resemble a female. Anyway, Strobl apparently often confused the gender in this genus, since four other specimens of *C. tristis* in his collection, labelled as 2 ♂♂ and 2 ♀♀, are in fact 4 ♂♂. On the other hand, the specimen designated as type by Morge (1974,

p.178) is clearly not the true type, although labelled «*Scat. tristis* Z. v. *obscuritarsis* m» by Strobl: the original label does not agree with the original description (date and locality differ) and, contrarily to what has been said by Morge (loc. cit.), there is no type label by Strobl himself appended to this specimen. This specimen is not conspecific with the true type, but belongs to the true *C. triste* (Zett.), as well as a third specimen of the Strobl collection, also labelled "v. *obscuritarsis*". The Spanish specimens considered by Strobl (1906) as belonging to the same variety are not conspecific, according to Duda (1928), who elevated the Spanish form to species level under the name "*Scatopse strobli* Duda" (see discussion under this name).

Though not recognized by subsequent authors, *C. obscuritarse* Strobl is a very distinctive species, which occupies a rather isolated taxonomic place among other European species of the genus.

Distribution. *C. obscuritarse* has been recorded from Czech Republic (Haenni & al. 2005), Norway (Haenni & Greve 2000), France (Haenni & Withers 2007) and Switzerland (Haenni 1998). It is known from only few localities in the mountainous ranges of Central and Southern Europe, namely the Šumava range in the Czech Republic, the Alps of Austria and Switzerland, the Vosges mountains and the Pyrenees in France, and from one locality in Southern Norway. This seems to indicate a boreo-mountainous pattern of distribution. Only one known locality (Podyjí National Park, in the Czech Republic) lies at a lower elevation.

Ecology. A mountainous species in Central Europe, one Swiss specimen was swept from low herbaceous vegetation and Ericaceae scrubs in a very dry clear subalpine pine wood, in the vicinity of the Swiss National Park, at an elevation of 1570 m. All the known specimens have been collected in May or June, except some Czech specimens, trapped by a Malaise trap between end of July and end of August.

Colobostema schertenleibi sp. n.

(Figs 10A–E)

Colobostema schertenleibi Haenni, 1998: Fauna Helv. 1, Diptera Checklist: 142, *nomen nudum*.

Type locality. SWITZERLAND, Ct. Neuchâtel: Cornaux (Les Rièdes).

Material examined. Type material. **Holotype** ♂ labelled «SUISSE-NE: Cornaux, Les Rièdes, 2.VI.2002, 566.920/208.350, 470m, J.-P. Haenni leg., garide / chênaie buissonnante» / «S 7078 « / «*Colobostema schertenleibi* n.sp. Haenni 2010 HOLOTYPE ♂». **Paratypes** (4 ♂♂): 1 ♂, same data as holotype; 2 ♂♂, same data as holotype but «10.V.2002», 1 ♂, same data as holotype but «19.V.2001». The dry-pinned holotype is in excellent condition, with cleared tip of abdomen and genitalia preserved in glycerine in a microvial on the same pin as holotype. The holotype and the dry-pinned paratypes are deposited in the collections of MHNN.

Other material. ANDORRA. Vall Sant Roc (Santa Coloma), 1050 m, VIII.1992, 2 ♂♂, 1 ♀; same, IX.1992, 1 ♂; same, dates ranging from 1.VI to 30.IX.1993, 7 ♂♂, all J. Pujade, FBUBA/MHNN. — CROATIA. Rijeka, 26.IV.1995, 1 ♂, 26.IV.1995, Ø. Håland, MHNN. — FRANCE. Alpes-Maritimes: Lantosque (col de Turini W), 880 m, 12.VI.1994, 1 ♂, J.-P. Haenni, MHNN; Ariège: Le Mas d'Azil, 307 m, 24.VI.1991, 1 ♂, J.-P. Haenni, MHNN; Indre-et-Loire: La Roche-Clermault, 21.IV.1990, 1 ♂, C. Cocquempot, INRAM/MHNN; Lot: Carennac, 180 m, 12.IV.2010, 1 ♂, J.-P. Haenni, MHNN; Boissières, 279 m, 16.VI.2012,

1 ♂, J.-P. Haenni, MHNN; Montcléra (Rudoux), 160 m, 17.X.2012, 1 ♂, J.-P. Haenni, MHNN; Var: Les Maures, Collobrières (vallon des Vaudrèches), 10.VI.1994, 1 ♂, J.-P. Haenni, MHNN. — SWITZERLAND. GR: Grono Dorf, 350 m, 31.VIII.2006, 1 ♂, B. Merz, MHNG; LU: Menzberg, 100 m, 3–6.VIII.1983, 1 ♂, G. Bächli, MHNN; TI: Piano d'Arbigo, 21.VII.1991, 1 ♂, F. Rampazzi, MSNL; Cevio, 10–11.IX.1991, 1 ♂, G. Bächli, GBC; Locarno env., (Brissago, Ronco s/Ascona, Locarno, Orselina, Minusio, Gordola), dates ranging from 25.III to 30.IX.1997, 89 ♂♂, M. Moretti, MSNL/MHNN (detail of captures in Haenni & Moretti in prep.); VS: Branson, Les Follatères, 600–800 m, 9.VI.2004, 4 ♂♂, J.-P. Haenni, MHNN; Lens, 2004, 1 ♂, P. Duelli, CGB.

Diagnosis. Males of *C. schertenleibi* are easily recognizable by the apically truncate gonocoxites (Fig. 10C) (in most European species, gonocoxites are triangular in general shape, more or less pointed at apex), together with the very short tergite 7, about three times wider than long (Fig. 10A), a feature unique among the Palaearctic species of *Colobostema*. Based on characters of genitalia and pregenital segment, *C. schertenleibi* presents some similarities with the Nearctic *C. varicorne* (Coquillett, 1902), from which it differs however by the apically truncate gonocoxites.

Description. Male. 1.8–2.0 mm long. A dark species, appearing entirely dull black, with blackish-brown tinged wings; katepisternum and meron shining black, coxae partly shining; usual light spots at posterior corners of notum poorly developed and darker than usual, only slightly contrasting with rest of thorax; anterior part of costal cell darker, a faintly discoloured spot on wing between anterior margin of wing and bend of M_1; halter with stem brownish and knob black; legs brown black except trochanters and extreme base of posterior femora, brownish, basal third of all tibiae contrasting yellowish brown, tarsi lighter brown, becoming darker towards apex.

Head. Antenna as long as head and thorax together, widening towards apex, with flagellomeres flattened and widened, first flagellomere much longer than wide, yellowish at base, following flagellomeres wider than long, last flagellomere about as long as preceding two together; eyes separated on frons above antennae by about half width of anterior ocellus.

Thorax. Notum stout, quadrate, hardly wider than long; wing (Fig. 10E) 2.3–2.8 mm long, M_1 with a marked bend and a short spurious stem directed anteriorad; M_{1+2} hardly longer than medial fork.

Abdomen. Segment 7 with a complete sclerotized basal ring; tergite 7 (Fig. 10A) shortened, much wider than long, posterior margin slightly produced medially; sternite 7 (Fig. 10B) broad, encompassing tergite, emarginate posteriorly. Genital capsule rounded with apically truncate gonocoxites (Fig. 10C), parameres broadened, acute apically, aedeagus long, sinuate, epandrium prolonged posteriorly into a bilobed, somewhat flattened and arched projection, with lobes not diverging much, apically truncate (Fig. 10D).

Female unknown. Numerous females with peculiar habitus (flagellum of antenna with four basal segments contrasting yellow) have been trapped in Southern Switzerland (canton Ticino) by Marco Moretti in the localities where males of *C. schertenleibi* sp. n. were also numerous. However, genital examination of these females proved the presence of two different taxa, thence it is not possible to unambiguously associate any of them to the males described here of this new species.

Taxonomic remarks. The quotation of *C. schertenleibi* in Haenni (1998) must be considered as *nomen nudum* (see above *Colobostema auberti* sp. n., 'Taxonomic remarks').

Distribution. *C. schertenleibi* is South European in distribution, known from Andorra, France, and Croatia, and extending north to Switzerland. No capture prior to 1983 is known and the species has apparently become more common in recent years. Considering this fact and its isolated taxonomic place within West-Palaearctic species, *C. schertenleibi* might be an invasive species accidentally introduced into Europe in recent decades. Its origin, however, is presently unknown.

Ecology. *C. schertenleibi* has been frequently captured in thermophilous or submediterranean biotopes in Switzerland in recent years. In Ticino (Southern Switzerland), it was the most common *Colobostema* species in burned chestnut-forests studied by Moretti (Moretti & Haenni in prep.). Its flight-period extends from end of March to end of September.

Derivation of name. The new species is named in memory of my dear friend the late André Schertenleib, enthusiastic Swiss naturalist and entomologist, who took part in the collecting trip in the Southern Alps of France during which the first specimens of this new species were discovered.

Colobostema triste (Zetterstedt, 1850)

(Figs 11A–G)

Scatopse tristis Zetterstedt,1850: Dipt. Scand. 9: 3404.
Colobostema oldenbergi Enderlein, 1926: Zool. Anz. 68(5/6): 140.
Scatopse tristis Zetterstedt,1850: Duda, 1928: Fliegen pal. Reg. 2(1)5: 39, Figs 37a–c, Pl. 1, Fig. 9 ; Krivosheina, 1969: Opred. nasekom. Evrop. Chast. SSSR 5(1–2): 422, Fig. 243(4); Krivosheina, 1989: Keys Ins. Europ. Part SSSR 5(1): 650, Fig. 243(4).
Scatopse sziladyi (Zilahi-Sebess, 1956): Acta zool. Hung. 2(4): 435, Figs 3–4. **syn. n.**
Colobostema triste (Zetterstedt,1850): Cook, 1956: 328, Figs 1A, 2A, 3A ; Cook, 1974: J. nat. Hist. 8: 63, Figs 1, 2, 71, 72, 75 ; Freeman, 1985: Hdbk Ident. Br. Insects 9(7): 39, Figs 125–128; Krivosheina & Haenni, 1986: Cat. pal. Dipt. 4: 305; Krivosheina 2000: Entomol. Obozr. 79(2): 493, Figs 1 (3), 2 (1), 4(6–11), 5(1–2).

Type locality. DENMARK [«Hab. in Dania»].

Material examined. **Holotype**: ♂, without locality, labelled as follows: «Zett. det. A» [square label with triple red thread, in Zetterstedt's handwriting] / «Coll. Staeger» [yellow printed label] / «ZOOL. MUS. KØBENHAVEN» [printed label] / «*Colobostema triste* Cook 68» [in Cook's handwriting]. I have labelled it «*Scatopse tristis* Zetterstedt HOLOTYPE ♂, rev Haenni 1990». The type in ZMUC Copenhagen, was slide-mounted by Cook and is in fairly good condition, except for somewhat damaged head and thorax as well as one lacking antenna.

Other material. ANDORRA. Puerto de Envalira, 1800 m, 8.VII.1990, 1 ♂; same, 1400 m, 8.VII.1990, 1 ♂, both M. Barták, CMB (Haenni & Baéz 2002). — AUSTRIA. Styria, 1.VII, 3 ♂♂, G. Strobl, NHMA (2 ♂♂ labelled «*Sc. tristis* ♂♀», 1 ♂ labelled «*Sc. tristis* v. *obscuritarsis*», det. G. Strobl). — BELGIUM. Heusden, 3.VI.1928, 1 ♂, M. Goetghebuer, IRSNB («*Scatopse nigripennis* Mg. det. M. Goetghebuer).— CZECH REPUBLIC. Horské Kvilda, 1000 m, 28.VI.1992, 2 ♂♂; Celakovice, 180 m, 10.IX.1991, 1 ♂; same, 2.V.1992, 1 ♂; Šumava, Jezerni Slát, 980 m, 7.VII.1988, 1 ♂; same, 21.V.1992, 1 ♂; Vráž u Pisku, 400 m, 31.V–2.VI.1994, 5 ♂♂; Šumava Kyselovský les, 725m, 17.V.1997, 1 ♂; Šumava-

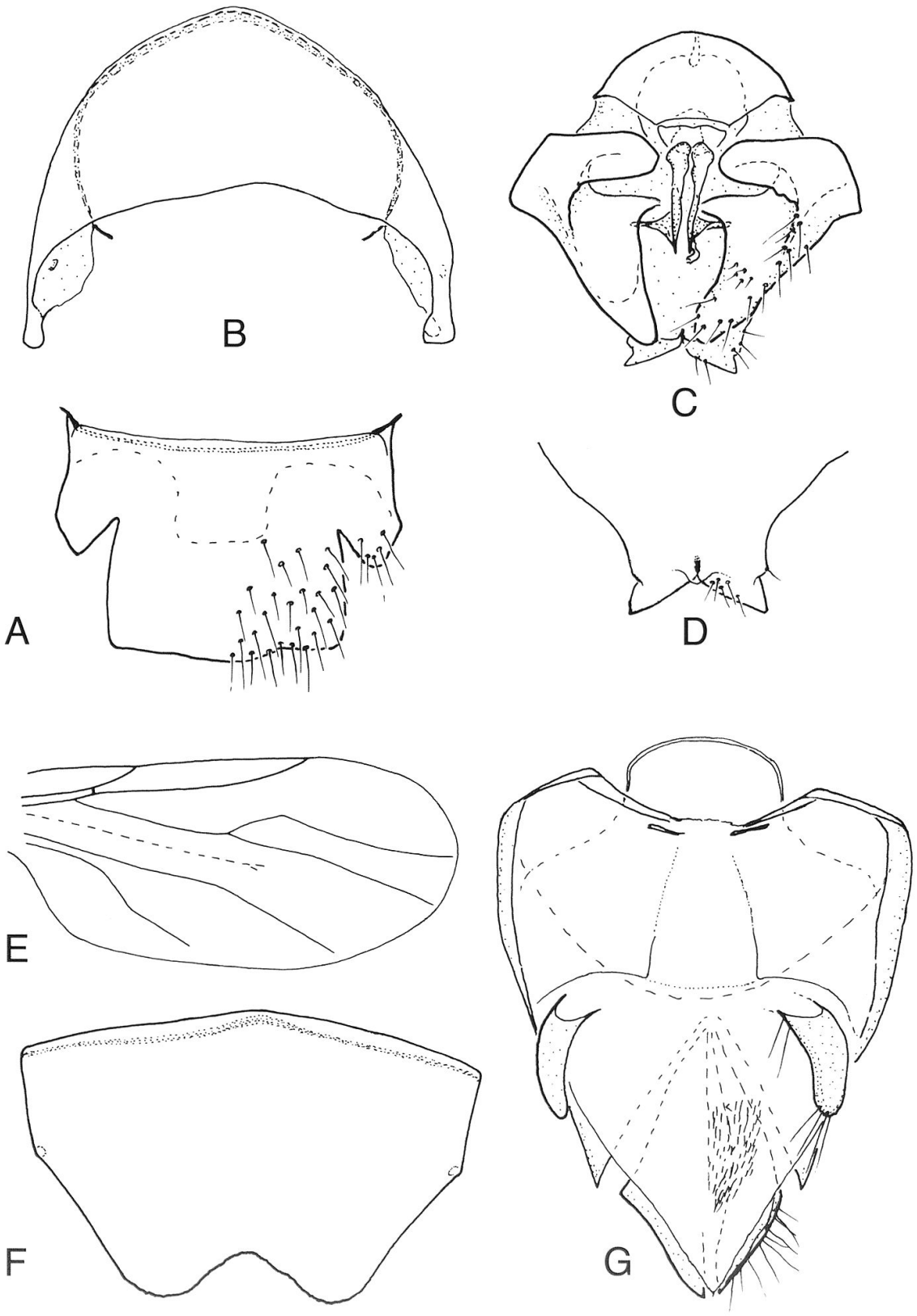

Fig. 11. *Colobostema triste* (Zetterstedt): A. Tergite 7, ♂. – B. Sternite 7, ♂. – C. Genital capsule, ♂, ventral. – D. Epandrium, distal part, ♂, dorsal. – E. Wing venation, ♂. – F. Tergite 7, ♀. – G. Terminalia, ♀, with sternite 8.

Spalenec, 800 m, 3.VII.1988, 1 ♂; Trinec-Sosna, 350 m, 9.V.1988, 1 ♂; Šumava-Popelné, 950 m, 4.VII.1988, 1 ♂; Šumava Borová Lada, 910m, 4.VI.1996, 1♂, M. Barták, CMB; Šumava, Chalupská Slát, 860 m, 17.VIII.1994, 3 ♂♂, M. Barták, CMB; Šumava Mts, Zhurské slaté, 1130 m, dates ranging from 18.V to 21.VII–21.VIII.1999, 5 ♂♂, all M. Barták, CMB/MHNN; Šumava Mts, Rokytecka slát, 1100 m, 18.V–16.VI.1999, 3 ♂♂; same, 16.VI–21.VII.1999, 2 ♂♂, all M. Barták, CMB/MHNN; Dobris (3 km W), 400 m, 19.VI.1988, 1 ♂; Velké Popovice (2 km SE), 470 m, 10.VII.1988, 1 ♂; Mrtvy Luh u Volnar, 720 m, 5.VII.1988, 3 ♂♂, all M. Barták, CMB; Podyjí NP: Fládnická chata, 360 m, 29.IV–21.V.2004, 1 ♂, M. Barták & Kubik, CMB; Podyjí NP: Havranikí, 330 m, 26.III–16.V.2002, 1 ♂, Meixnerová, CMB. The author has studied 13 additional specimens from the Bilina-Duchcov area (Haenni & Barták 2000) and from Podyjí National Park (Haenni & al. 2005). — FRANCE. Ain: Lavours, 25.VII.1986, 1 ♀; same, 8.VIII.1986, 2 ♂♂; same, 1.IX.1987, 2 ♂♂, all J. Brunhes, MHNN; Doubs: Lac de Remoray S, 852 m, 5.VI.1993, 2 ♂♂, J.-P. Haenni, MHNN; Vuillafans, 360 m, 25.V.1994, 1 ♂, J.-P. Haenni, MHNN; Haute-Marne: Wassy, 2.V.1965, 1 ?♀, BMNH (C. triste, det. Cook, 1969); Isère: Lac Luitel, 16.V.1993, 1 ♂, P. Withers, CPW; Haute-Savoie: Salève (Téléphérique), 1100 m, 10.VIII.2000, 1 ♂, B. Merz & G. Bächli, MHNN; Landes: Léon (Escalus), 19.VII.2001, 1 ♂, J.-P. Haenni, MHNN; Puy-de-Dôme: La Barthe, 2.VII.1984, 1 ♂, J. Brunhes, MHNN; Chambedaze, 12.VII.1985, 1 ♀, J. Brunhes, MHNN; Aydat (Narse d'Espinasse), 1000 m, 11.VII.1995, 1 ♂, J.-P. Haenni, MHNN; Hautes-Pyrénées: Pic Long, 2200 m, 9.VII.1990, 1 ♂, M. Barták, CMB; Bas-Rhin: Val-de-Villé, 1 ♂, MNHN (Haenni & Withers 2007). — GERMANY. Berlin, Potsdam Wildpark, 18.VI.1920, 1 ♀, L. Oldenberg, (type of *Colobostema oldenbergi* Enderlein), DEI; Berlin, Standf., 1 ♂, L. Oldenberg, DEI; Berlin, Finkenkrug, 5.V.1907, 1 ♂, L. Oldenberg, DEI; Potsdam, 18.VI.1920, 1 ♂, L. Oldenberg, DEI (these 3 specimens labelled «*tristis* d. Duda»; Kochelsee, Mülecker Filz, 22.VII.1990, 2 ♂♂, F. Püchel, FBUB. Nordrhein-Westfalen: Bielefeld, Johannisberg, 21.IX.1983, 4 ♂♂, FBUB; Scherfede (NSG), 28.V.1988, 1 ♂, M. von Tschirnhaus, FBUB. Schleswig-Holstein: Mölln, Hellbachtal, 21.V.1989, 1 ♂, M.von Tschirnhaus, MHNN. Thüringen: Thüringer Wald, Schnellbach (Weidmannsruh), 27.V–25.VI.1999, 1 ♂, R. Bellstedt, MNG; Rhön, Volkershausen (Öchsenberg), 11.VI–25.VII.1999, 1 ♂, R. Bellstedt, MNG; Schiefergeb. Gahma Riesenbach, 450m, 22.V.2000, 2 ♂♂, R. Bellstedt, MNG. — GREAT-BRITAIN, England. Cambs, Wicken, 1.V.1904, 1 ♂, G.H. Verrall; Chippenham, 15.V.1904, 1 ♂, G.H. Verrall, («*Scatopse tristis* Zett»); Suffolk, Barton Mills, 4.V.1939, 1 ♂, J.E. Collin; Suffolk, Chippenham, 21.IV.1939, 1 ♂, J.E. Collin; Warwickshire, 16.VIII.1968, 1 ♂, M.B. Green (C. triste (Zett.), det. Hutson 1969); Oxon, Waterferry Wood, 5.V.1940, 4 ♂♂, F.W. Edwards, («*C. triste* (Zett.)»); Scillies, Tresco, 6.X.1970, 1 ♂, A.M. Hutson, BMNH (placed in coll. under *C. triste* (Zett.). Wales. Dyfed, Puncheston Common, 20.VII.1987, 1 ♂, (*C. triste* (Zett.) det. P. Freeman); Dyfed, Gwann Garthenor, 4.IX.1986, 1 ♂; Carnnefon, Rhosgyll Fawr, 14.VII.1988, 1 ♂; Merioneth, Hermon Copper Bog, 25.VII.1988, 1 ♂, (*C. triste* (Zett.) det. P. Freeman, all in BMNH. — LITHUANIA. Sviencionis, distr. Prudiscis, 27.VI.1983, 1 ♂, A. Stationyte, VUIZ (Haenni 1993b). — NETHERLANDS. Zwammerdam, VII.1900, 1 ♂, De Meijere, (labelled «*tristis* Zett. d. Duda» and «*Colobostema triste* (Zetterstedt, 1850) det. P.L.Th. Beuk 1993»), ZMA. — NORWAY. The author has studied 5 specimens from provinces

BØ, BV, and RY, detail of records in Haenni & Greve 2000); RY: Sandnes, near Figgjo, 9.V.1993, 1 ♂, Ø. Håland, ZMUB — POLAND. Morskie Oro, Tatra Mts, 6.VII.1932, 1 ?♀, D. Aubertin & E. Trewavas, BMNH (*C. ?simplicinervis* Duda det. Hutson 1972, *C. nigripenne* Mg. det. Freeman, 1987); Kwjawy Matuns, 15.V.1975, 1 ♂, R. Szadziewski, CRS (*C. triste* Zett. det. R. Szadziewski). — SPAIN. Irun, 5.V.[19'??], 1 ♂, G. Strobl, NHMA («*Sc. tristis* Z.» [det. Strobl, f. *genuina* in cat. of coll.]). — SWITZERLAND. BL: Bubendorf, NSG Wildenstein, 7–14.IX.2000, 1 ♂; same, 14–21.IX.2000, 1 ♂, both M. Wolf, CGB; GE: Bernex (Chante-Merle), 420 m, 7.VIII.2000, 3 ♂♂, B. Merz & G. Bächli, MHNN; Jussy (Prés de Villette), 8.VIII.2000, 1 ♂, B. Merz & G. Bächli, MHNN; GL: Elm, Wichlen, 1300 m, 15.VIII.2001, 3 ♂♂, G. Bächli, CGB; Schwändital, 2000, 1 ♂, P. Duelli, CGB; GR: Savognin, 1360 m, 17–20.VIII.1988, 2 ♂♂, G. Bächli, CGB; Sur (Lai Neir), 1915 m, 3.VI.2000, 4 ♂♂, J.-P. Haenni, MHNN; JU: La Chaux-des-Breuleux, La Tourbière, 980 m, 4.VI.2003, 2 ♂♂, J.-P. Haenni, MHNN; same, 28.VI.2003, 1 ♂, G. Bächli, CGB; LU: Luzern, 10.VI.2006, 5 ♂♂, G. Bächli, CGB; NE: Les Ponts-de-Martel, Bois des Lattes, 1000 m, dates ranging from 5.VIII to 13.IX.1986, 4 ♂♂, C. Vaucher-von Ballmoos, CCV; same, 4.VIII.1989, 15 ♂♂, 6 ♀♀, J.-P. Haenni, MHNN; Le Cachot, 1050 m, dates ranging from 1.VI to 17.IX.1973, 28 ♂♂, 1 ♀; same, dates ranging from 15.V to 29.V.1974, 9 ♂♂, all W. Matthey, MHNN; same, 30.VIII.1977, 1 ♂, W. Geiger, MHNN; same, dates ranging from 31.V to 5.VII.1993, 10 ♂♂, 3 ♀♀, C. Vaucher-von Ballmoos, CCV and MHNN; SG : Schwändital, 2004, 1 ♂, P. Duelli, CGB; SO : Weissenstein, 25.VI.2006, 1 ♂, G. Bächli, CGB; VS: Morgins, Portes de Culet, 28.VII.2004, 1 ♂, G. Bächli, CGB; ZH: Dietikon, 390 m, 20.VII.1989, 1 ♂; same, 4.VII.1991, 1 ♂, both G. Bächli, CGB; Zürich, 550 m, 31.V–24.VI.1994, 1 ♂, A. Schaffner, CGB; Hönggerberg, 13–17.VII.1996, 1 ♂, G. Bächli, CGB; same, 2–6.VIII.1997, 2 ♂♂, G. Bächli, CGB and MHNN; same, 5–7.VII.1998, 1 ♂, G. Bächli, CGB.

Diagnosis. Males of *Colobostema triste* are easily distinguishable from other species of the genus by the peculiar shape of tergite 7 (Fig. 11A), with a broad median posterior projection, appearing truncate or slightly concave according to the angle of view; the short triangular posterior projections of the epandrium are also characteristic (Fig. 11D). The female has antennal flagellomeres 1 and 2 contrasting yellow, posterior margin of tergite 7 notched medially (Fig. 11F), elongate valvifers and no submedian additional sclerotized paired plates on sternite 8 (Fig. 11G).

Description. Male. 1.5–2.1 mm. Body nearly entirely dull black, with dark pilosity, except lower parts of pleurae shining, a pair of hardly visible, fulvous spots at the posterior corners of thorax, apex of tibiae and tarsomeres 1 and 2 fulvous, somewhat contrasting according to the direction of light; extreme base of wings and stem of halters fulvous dark, hardly contrasting; wings practically translucent, slightly greyish with anterior veins brown and posterior veins translucent, not contrasting.

Head. Eyes separated by about a third or half of width of anterior ocellus, antennae somewhat longer than thorax, weakly widening towards apex; flagellomere 1 longer than wide, 2 about as long as wide, 3 to 7 wider than long, last somewhat shorter than the two preceding ones.

Thorax. Notum quadrate, as wide as long; wing (Fig. 11E), 1.9–2.3 mm long. M_1 angled at $^1/_4$ basal, with a hardly marked stem of vein; M_{1+2} shorter than medial fork.

Abdomen. Tergite 7 (Fig. 11A) with posterior median projection broad, truncate at apex; sternite 7 (Fig. 11B) broad, encompassing tergite 7, with posterior margin shallowly undulate; genital capsule as wide as long, with gonocoxites broadly triangular, apically rounded (Fig. 11C), parameres shortened, aedeagus thick, epandrium with posterior projection symmetrical, lateral lobes short, blunt apically (Fig. 11D).

Female. Like male in colour and general aspect, but antennal flagellar segments 1 and 2 contrastingly yellow; posterior margin of tergite 7 with a median notch (Fig. 11F), valvifers of sternite 8 incurved, elongate (Fig. 11G).

Taxonomic remarks. Andersson (1978), who revised the Scatopsidae of the Zetterstedt collection in Lund, noticed that the type specimen of *Scatopse tristis* from Denmark («♀», according to the original description by Zetterstedt 1850) «[...] is not present in Zetterstedt's collection. It was probably returned to Staeger.» Actually, there are good reasons to think that the male specimen of *C. triste* present in the Staeger collection in ZMUC Copenhagen under the name *Scatopse tristis* is the type of this species. Although not clearly labelled as such, it was identified by Zetterstedt himself as *Scatopse tristis*. I have studied this specimen, which was slide mounted by Edwin F. Cook in 1968 —but strangely not published by him in his «Synopsis of the Scatopidae of the palaearctic. Part III» (Cook 1974)— and its identity is in accordance with the original description and also agrees with the usual concept of the species by subsequent authors.

The type of *C. oldenbergi* Enderlein, 1926 in DEI has also been examined; it clearly belongs to the same species, as established by Duda (1928).

The type (and only known specimen) of *Scatopse sziladyi* Zilahi-Sebess, 1956 was unfortunately destroyed during the burning of the Hungarian national Natural History Museum of Budapest in 1956 (L. Papp in litt.). According to the original description and drawings (Zilahi-Sebess 1956), *S. sziladyi* is clearly a *Colobostema* species as may also be inferred from the fact that the species was compared with *C. nigripenne* in the original description (Zilahi-Sebess 1956). The shape of tergite 7 and the genital features are very similar to those of *C. triste*, as far as can be seen from his Figures 3a and 3b, and the entire description is also applicable to this species, which is well characterized among the European *Colobostema*. Moreover, Zilahi-Sebess apparently ignored *C. triste*, since he did not include this widespread species in his key to the Hungarian species of the family Scatopsidae (Zilahi-Sebess 1960), where, in contrast, *C. sziladyi* is mentioned. The characters given to separate this species from *C. nigripenne* entirely apply to *C. triste*. According to this and to the fact that original specimens are not available anymore, the name *C. sziladyi* is considered here as a synonym of *C. triste*.

Distribution. *C. triste* is a widespread species in Europe, having been recorded with certainty from the following countries: Germany, Poland (Cook 1956), Hungary (Zilahi-Sebess 1956 [under the junior synonym name *sziladyi*], Papp & Kaufman 1989, 1993), Sweden, Finland, Russia, France (Cook 1974), Lithuania (Haenni 1993b), France (Withers 1994, Haenni & Withers 2007), Slovakia (Martinovský 1997, Kozanek & Roller 1997, Haenni 2009), Czech Republic (Martinovský 1997, Haenni & Barták 2000, Haenni & al. 2005), Switzerland (Haenni 1986, Vaucher-von Ballmoos 1997), Germany (Schacht 1997, Haenni 1999, 2011), British Isles (Chandler 1998), Norway (Haenni & Greve 2000), Russia, Finland (Krivosheina 2000), Andorra, Spain (Haenni & Baéz 2002), Netherlands (Beuk 2002).

Ecology. *C. triste* is a widespread species that may be caught in numerous biotopes; it is particularly frequent in peat-bogs and acidophilous meadows. The flight period extends from May to September. As other species of *Colobostema*, according to Enderlein (1926, under the synonym name *C. oldenbergi*) this species may probably be myrmecophilous: Oldenberg caught one female specimen «[...] auf einem Baumstumpf sitzend, der unten mit Ameisen dicht besetzt war.» [«... staying on a stump which was underneath heavily occupied by ants»].

A SIMPLIFIED KEY TO EUROPEAN *COLOBOSTEMA*

(males only, exclusive of the Mediterranean region)

A complete key to the West Palaearctic species of the genus will be provided in the second part of this revision. The simplified key below, essentially based upon characters of the male genitalia and of the pregenital segment, allows the identification of the temperate and boreal European representatives of the genus that are dealt with in the first part. Great care should be exercised regarding the shape of tergite 7, the appearance of which varies considerably according to the angle of view. Furthermore, it may be markedly distorted in dried specimens. To ensure a safe identification, it is highly advisable to cut and clear the tip of abdomen in potash.

1. Tergite 7 very short, about 3 times as wide as long (Fig. 10A); gonocoxites broadly truncate apically (Fig. 10C) ..... ***C. schertenleibi* sp. n.**
— Tergite 7 longer, as long as wide, or at most twice as wide as long; gonocoxites never broadly truncate apically **2**

2. Posterior margin of tergite 7 deeply emarginate (Fig. 9A); gonocoxites large, gradually narrowing towards apex (Fig. 9C) .... ***C. obscuritarse* (Strobl)**
— Tergite 7 variously produced posteriorly or at most only slightly emarginate on posterior margin **3**

3. Apical lobes of epandrium rounded (Fig. 4D); posterior margin of tergite 7 sinuous or shallowly emarginate (Fig. 4A) ..... ***C. geigeri* sp. n.**
— Apical lobes of epandrium acute; posterior margin of tergite 7 differently shaped **4**

4. Posterior margin of tergite 7 with 4 lobes, the submedian pair slightly asymmetrical, not much more developed than lateral pair (Fig. 2A); gonocoxites bearing an acute inner basal process (Fig. 2C) .... ***C. dudai* Krivosheina**
— At most 3 projections on posterior margin of tergite 7, median one usually much more developed than lateral ones, or tergite 7 nearly square or roughly pentagonal in shape **5**

5. Gonocoxites massive, apically not narrowed (Fig. 3C); tergite 7 with a broadly triangular median projection on posterior margin (Fig. 3A) ..... ***C. flavimanum* (Strobl)**
— Gonocoxites more slender, broadly triangular, always narrowing towards apex **6**

6. Tergite 7 roughly square or pentagonal, or posterior margin produced into a broad, practically straight median projection (Figs 1A–B, 11A) **7**
— Posterior margin of tergite 7 produced into a narrow elongate median projection, which is rounded or narrowly truncate apically, surrounded by a pair of much shorter, more or less developed lateral projections (Figs 5A, 6A, 7A, 8A) **8**

7. Tergite 7 pentagonal or square, with a short rounded median posterior projection (shape varying according to angle of view) (Figs 1A–B); epandrium with slightly asymmetrical apical lobes, which are comparatively longer and acute (Fig. 1E) ..... ***C. auberti* sp. n.**
— Posterior margin of tergite 7 with a broad, truncate median projection (Fig. 11A); epandrium with symmetrical short and blunt apical lobes (Fig. 11D) ..... ***C. triste* (Zetterstedt)**

8. Epandrium strongly asymmetrical apically, with one lobe much more developed than the other (Fig. 6D); sternite 7 deeply emarginate posteriorly, with strongly developed lateral projections (Fig. 6B) ..... ***C. infumatum* (Haliday)**
— Epandrium with apical lobes symmetrical or only weakly asymmetrical; sternite 7 only weakly emarginate posteriorly **9**

9. Epandrium with very acute, horn-like apical projections, which are directed posteriorly more or less obliquely (Fig. 5D) ..... ***C. griseinerve* (Duda)**
— Epandrium with apical lobes acute, directed laterally (Figs 7D, 8D) **10**

10. Median projection of posterior margin of tergite 7 rounded apically (Fig. 8A); gonocoxites strongly narrowed in distal half, with apex appearing blunt in ventral view (Fig. 8C); aedeagus short (Fig. 8C) .... ***C. nigripenne* (Meigen)**
— Median projection of posterior margin of tergite 7 clearly truncate apically (Fig. 7A); gonocoxites less strikingly narrowed in distal part, with apex acute (Fig. 7C); aedeagus elongate (Fig. 7C) ..... ***C. lastovkai* sp. n.**

ACKNOWLEDGEMENTS

I want to gratefully thank the numerous colleagues and friends who kindly put at my disposal over the years the material from their institution or from their own collection: Gerhard Bächli, Zoologisches Museum der Universität Zürich-Irchel, Switzerland; Sylvie Barbalat, Institut de Zoologie, Université de Neuchâtel, Switzerland; Miroslav Barták, Agricultural University, Prague, Czech Republic; Yves Basset, Smithsonian Tropical Research Institute, Panama; Ronald Bellstedt, Museum der Natur, Gotha, Germany; †Michel Brancucci, Naturhistorisches Museum, Basel, Switzerland; Jacques Brunhes, Université Blaise-Pascal de Clermont-Ferrand, France; Christian Cocquempot, INRA, ENSA-M, Montpellier, France; Michel Dethier, Institut de Zoologie, Université de Neuchâtel, Switzeland; Dieter Doczkal, Malsch, Germany; Christophe Dufour, Muséum d'histoire naturelle, Neuchâtel, Switzerland; Peter Duelli, WSL, Birmensdorf, Switzerland; †Paul Freeman, Natural History Museum, London, United Kingdom; Willy Geiger, Institut de Zoologie, Université de Neuchâtel, Switzerland; Yves Gonseth, CSCF, Neuchâtel, Switzerland; Lita Greve-Jensen, Zoological Museum of the University, Bergen, Norway; Patrick Grootaert, Institut royal des Sciences naturelles de Belgique, Bruxelles, Belgium; Charles Huber, Naturhistorisches Museum, Bern, Switzerland; Prior Bruno Hubl, Abtei Admont, Austria; Alois Kofler, Lienz, Austria; Milan Kozánek, Institute of Zoology, Academy of Sciences, Bratislava, Slovakia; Nina Pavlovna Krivosheina, A.N. Svertzov Institute of Ecology and Evolution, Russian Academy of Sciences, Moscow; †Petr Laštovka, Research Institute of Food Industry, Department of Entomology, Prague; †Loïc Matile, Muséum national d'Histoire naturelle, Paris; †Willy Matthey, Institut de zoologie de l'Université de Neuchâtel, Switzerland; Bernhard Merz, ETHZ, Zürich and Muséum d'histoire naturelle, Geneva, Switzerland; Waldemar Mikołajczyk, Polish

Academy of sciences, Warszawa, Poland; Marco Moretti, WSL, Bellinzona, Switzerland; Emilia Petrovna Nartshuk, Zoological Institute, Russian Academy of Sciences, Leningrad, Russia; James P. O'Connor, National Museum of Ireland, Dublin, Ireland; Pjotr Oosterbroek, Zoologisch Museum, Amsterdam, the Netherlands; Thomas Pape, Zoological Museum of the University of Copenhagen, Denmark; Sigitas Podenas, Vilnius University, Lithuania; Lucia Pollini, Museo cantonale di storia naturale, Lugano, Switzerland; Juli Pujade, University of Barcelona, Spain; Filippo Rampazzi, Museo cantonale di storia naturale, Lugano, Switzerland; Jindřich Roháček, Department of Entomology, Silesian Museum, Opava, Czech Republic; Michel Sartori, Musée cantonal de Zoologie, Lausanne, Switzerland; Karin Schiegg, WSL, Birmensdorf, Switzerland; Andreas Stark, Halle an der Saale, Germany; Ryszard Szadziewski, Department of Invertebrate Zoology, University of Gdansk, Poland; Michael von Tschirnhaus, Universität Bielefeld, Germany; Hans-Peter Tschorsnig, Museum für Naturkunde, Stuttgart; Catherine Vaucher-von Ballmoos, Institut de Zoologie, Université de Neuchâtel, Switzerland; Pekka Vilkamaa, Finnish Museum of Natural History, Helsinki; Doreen Werner, Museum für Naturkunde Berlin, Germany; Phil Withers, Sainte-Euphémie, France. I wish to express special thanks to Christophe Dufour, Muséum d'histoire naturelle, Neuchâtel, Switzerland, Bernhard Merz, Muséum d'histoire naturelle, Geneva, Switzerland and Dalton de Souza Amorim, Universidade de São Paulo, Ribeiro Preto, Brasil, for useful discussions and constant encouragement and support.

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(received June 19, 2013; accepted October 28, 2013; published December 31, 2013)