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A REVIEW OF TEPHRITIDAE AND ULIDIIDAE (DIPTERA, TEPHRITOIDEA) OF CROATIA

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A Review of Tephritidae and Ulidiidae (Diptera, Tephritoidea) of Croatia. Kovac, D., Kameneva, E. P., Korneyev, V. A. — Started by G. R. von Frauenfeld, R. Schiner and G. Strobl over 120 years ago by collecting several species in "Dalmazien", studies of the fruit flies (Tephritidae) and picture-winged flies (Ulidiidae) in Croatia to date have been casual and fragmentary. Regular collecting of these families in Modruš (Karlovac County) during 2021–2022 has resulted in a list of 85 species of Tephritidae and 15 species of Ulidiidae presented here, of which 21 Tephritidae and three Ulidiidae species, respectively, are recorded from Croatia for the first time. Examined material and references are listed, and the rare or newly recorded species are illustrated. The status of type specimens of some nominal species described by Frauenfeld and Schiner from Croatia is discussed.
Key words: Croatia, Diptera, Tephritidae, Ulidiidae, checklist, new records.

Introduction

The superfamily Tephritoidea is represented in Europe by 8 families: Piophilidae, Eurygnathomyidae, Pallopteridae, Lonchaeidae ("Lower Tephritoidea") and Ulidiidae, Platystomatidae, Pyrgotidae, and Tephritidae ("Higher Tephritoidea") (Korneyev, 1999). The family status of Eurygnathomyidae, which was considered to be a subfamily of Pallopteridae, was substantiated by Han, Ro (2016).

Tephritidae and Ulidiidae from Croatia as a part of the former Austro-Hungarian Empire were studied by Frauenfeld (1855, 1857, 1861), Schiner (1864) and Strobl (1893, 1898, 1900, 1904). Later, several species of Tephritidae were listed by Langhoffer (1928) and Coe (1958, 1962) from Croatia as a part of former Yugoslavia and Soós (1957) and Mihályi (1959) listed species of Ulidiidae and Tephritidae known from the "Carpathian Basin", geographically covering most territory of the former Austro-Hungarian Empire, including Croatia. More recently, these data were summarized by Merz, Korneyev (2004) on the FaunaEuropaea database (in which many of the above-mentioned records were lacking) and Bjeliš (2007), who also added more species from the Adriatic seashore to the list. A phylogenetic analysis carried out by Mazzon et al. (2010) included several species collected on the Istrian Peninsula. However, these data were sporadic and includes only about a half of the number of species expected to occur in Croatia.

In the summers of 2021 and 2022 the first author (DK) made regular collections of tephritoid flies in Modruš (Karlovac County or Karlovačka županija) in central Croatia. The collecting sites were located within a radius of 2.5 km around Gornji Modruš (Upper Modruš). DK collected extensive material, which was then identified by EPK and VAK. This material contained 50 species of Tephritidae and Ulidiidae, a half of species here recorded from Croatia.

Material and methods

The following acronyms refer to collections housing specimens:
MNKB: Museum für Naturkunde, Berlin, Germany;
NHMW: Naturhistorisches Museum Wien, Austria;
NMP: Narodny Muzeum Praha Počernice, Czech Republic;
SIZK: I. I. Schmalhausen Institute of Zoology, National Academy of Sciences of Ukraine, Kyiv, Ukraine;
SMNF: Senckenberg Museum für Naturkunde Frankfurt-am-Main, Germany.

All the material examined originated from Croatia, so the country is omitted in the Material lists. The localities are given as on the original German labels; their coordinates in decimal format are as follows:

beim Brunnen	45.1476, 15.2452;
Brela	43.3694, 16.9266;
Draga	45.1481, 15.2559;
Feuchtgebiet vor Lug, Lug	45.1587, 15.2517;
hinterm Haus (Burgberg), 02.06.2022	45.1465, 15.2458;
"Insektenzoo", Richtung Senj Strasse ("Insektenzoo")	45.1328, 15.2312;
Klette, Klette, ca. 2.8. geschlüpft	45.1418, 15.2339;
bei Senj Strasse	45.1351, 15.2465;
bei Autobahn	45.1395, 15.2667;
Richtung "Insektenzoo"	45.1406, 15.2356;
Richtung Klek, 02.06.2022	45.1644, 15.2187;
Richtung Klek, 04.06.2022	45.1789, 15.2109;
Richtung Lug, Wiese oberhalb Lug	45.1532, 15.2445;
Tržan Berg	45.1485, 15.2458.

Some localities / historical names mentioned in the literature and on old labels are as follows (coordinates are given for centers of settlements as in Wikipedia):

Fužine	45.3000, 14.7167;
Lesina = Hvar	43.1333, 16.7333;
Krk: Scardone ("Kerkafälle", = Skradin)	43.8167, 15.9167;
Plitvice	44.8804, 15.6160;
Ragusa = Dubrovnik	42.6403, 18.1083;
Solina	43.5317, 16.4949;
Spalato = Split	43.5100, 16.4400;
Zara = Zadar	44.1194, 15.2319.

Species recorded from Croatia for the first time are marked by asterisk (*).
Labels of the type specimens are cited literally; slash (/) is used to mark line breaks, where important.
Unless otherwise stated, the remarks on biology are based on field observations of the third author (VAK) throughout Europe.

Tephritidae
Dacinae Ceratitidini

Ceratitis capitata (Wiedemann, 1817)

Lemic et al., 2020.

Remarks. Not represented in our material. Noxious pest of various fruits, including apricots and peaches, mostly on the Adriatic coast of Croatia.

Dacinae Dacini

Bactrocera oleae (Rossi, 1790)

Strobl, 1893: 126; 1900: 626 (*Dacus oleae*) — "Dalmatien".

Material. Split-Dalmatia: "Dacus oleae / Ragusa / Alte Sammlung", 1866, 1 ♂, 1 ♀ (NHMW).

Remarks. Not represented in our material. Economically important pest of olives, mostly on the Adriatic coast of Croatia.

Tephritinae Euarestini

Euaresta bullans (Wiedemann, 1830)

Bjeliš, 2007: 371.

Material. Split-Dalmatia: "Dalmatien", "bullans Wd. / tenera Lw. / Alte Sammlung", 2 ♂, 1 ♀ (NHMW).

Remarks. Larvae in flower heads of *Xanthium spinosum* (Asteraceae).

Tephritinae Myopitini

Inuromaesa maura (Frauenfeld, 1857)*

Material. Split-Dalmatia: Gorni Muć, 43.6908, 16.4956, 500 m a. s. l., abandoned garden, 10–24.08.2014, 1 ♀ (B. Kokan) (NMP).

Remarks. Larvae infest achenes of *Pentanema salicinum* (= *Inula salicina*) (Asteraceae) (Merz, 1994).

Myopites blotii Brébisson, 1827*(figs 1, *a–g*, *j*)

Myopites inulaedyssentericae auctt. (pro parte); *Myopites apicatus* Freidberg, 1980.

Material. Karlovac: Modruš: bei Autobahn, 14.08.2021, 1 ♂, bei Senj Strasse, 03.08.2021, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Revision of the genus *Myopites* Blot (Korneyev et al., in prep.) has shown that *M. blotii* (also sometimes reported as *M. inulaedyssentericae* Blot) associated with *Pulicaria dysenterica* in Western to Southern Europe and the Near East and *M. inulae* associated with *Pentanema ensifolium*, *Pe. hirtum*, and *Pe. salicinum* are different species. They were hitherto confused in most catalogues, keys and revisions of Palaearctic Tephritidae. Synonymy will be explained and justified in the forthcoming revision (Korneyev et al., in prep.).

Myopites inulae Roser, 1840* (figs 1, *h–i*, *k*)

Myopites inulaedyssentericae auctt. (pro parte, misid.).

Material. Karlovac: Modruš, Draga. 03.06.2022, 1 ♂ (Kovac leg.) (SMNF).

Remarks. As noted above, *M. blotii* and *M. inulae* are separate species, which differ by host plant range, length of ovipositor (short in *M. blotii* and long in *M. inulae*) and colouration of pleura (entirely yellow in *M. blotii* and widely black ventrally in *M. inulae*). This examined male has widely black pleura and large black spots on the abdominal tergites, which are typical for *M. inulae* (figs 1, *h–i*). Larvae induce galls in receptacles of *Pentanema ensifolium*, *P. hirtum*, and *P. salicinum*.

Myopites longirostris (Loew, 1846)

Frauenfeld, 1861: 542; Strobl, 1893: 125; 1900: 624 (as *Myopites blotii* — misid.); Schiner, 1864: 142 (*Myopites frauenfeldi*); Merz, Korneyev, 2004 (*Myopites zernyi*); Bjeliš, 2007: 372 (*Myopites zernii* — misspelling); Mazzon et al., 2010: 314 (*Myopites inulaedyssentericae*, misid.).

Material. Split-Dalmatia: "Spalato VII", 1 ♂ (head missing) ("Frauenfeldi / det Hendel") (NHMW).

Remarks. Synonymy will be explained and justified elsewhere (Korneyev et al., in prep.). Occurring on maritime salty marches, inducing galls in flower heads of *Limbarda crithmoides*.

Myopites stylatus (Fabricius, 1794)

Schiner, 1864: 142; Strobl, 1893: 125 (*Myopites limbardae*); 1900: 624 (*Myopites stylata*); Bjeliš, 2007: 372 (*Myopites stilatus* — misspelling); Merz, Korneyev, 2004.

Material. Syntypes of *Myopites limbardae*: Split-Dalmatia: 1 ♀: "Dalmatien", "Frfld. / Dalmatien / 1857", "limbardae / Alte Sammlung" and 1 ex. [abdomen missing] "Dalmatien", "limbardae / Alte Sammlung". Other possible syntypes: 3 ♂ "Dalmatia / (Frfld.) // Mik", "limbardae / det. Mik", "Myopites limbardae Schin." (NHMW).

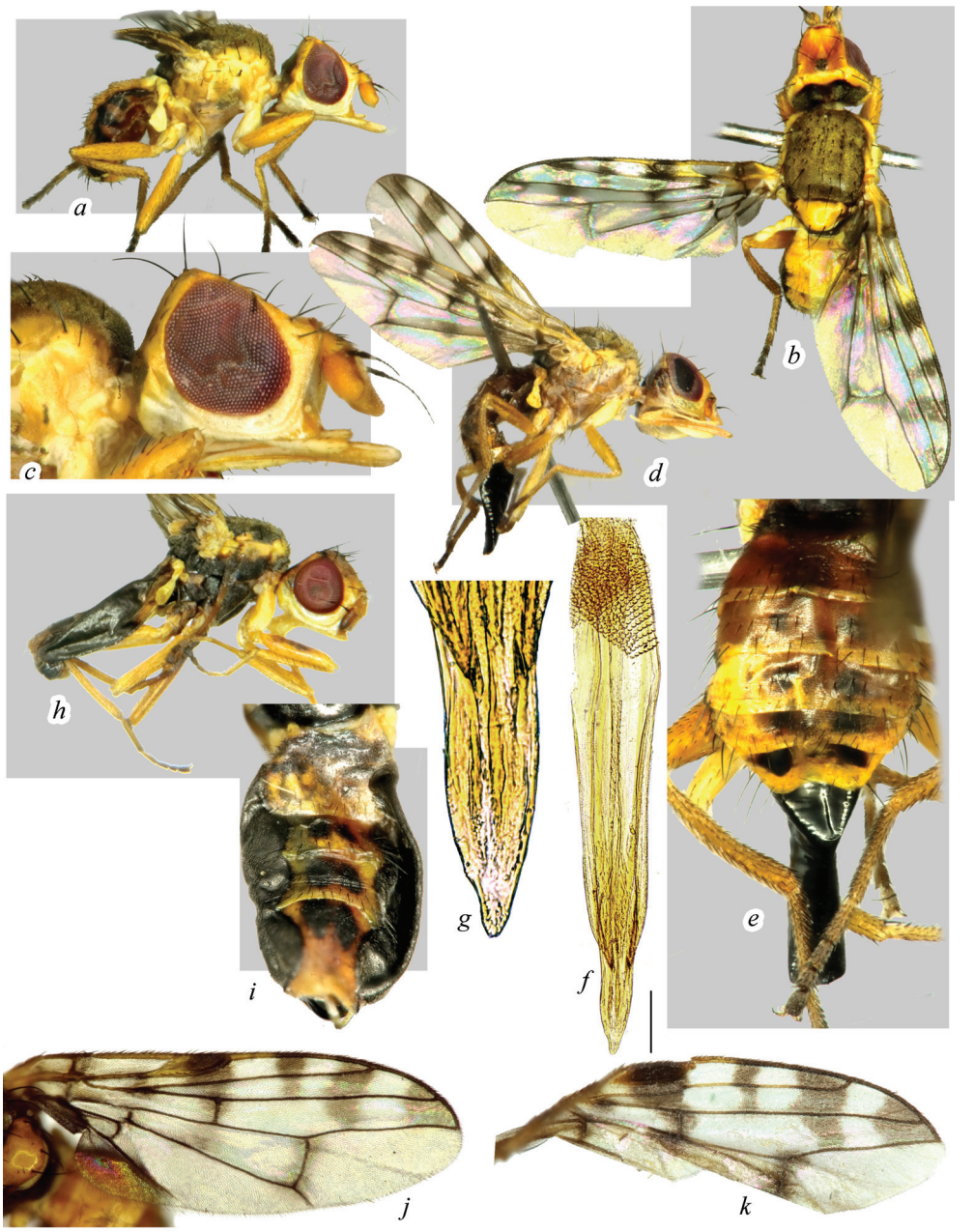

Fig. 1. *Myopites blotii* ♂ (*a*–*c*, *j*), ♀ (d–g) and *M. inulae* ♂ (*h*, *i*, *k*): *a*, *d*, *h* — habitus right; *b* — habitus dorsal; *e*, *i* — abdomen dorsal; *f* — aculeus; *g* — aculeus apex, enlarged; *j*, *k* — wing. Scale bar 0.1 mm.

Remarks. Occurring on sea shores, inducing galls in flower heads of *Dittrichia viscosa*. Synonymy will be explained and justified elsewhere (Korneyev et al., in prep.).

Urophora jaceana (Hering, 1935)* (figs 2, *a*, *c*)

Material. Karlovac: Modruš: Tržan Berg, 25.07.2021, 3 ♂; Feuchtgebiet Lug, 02.08.2021, 1 ♀; bei Senj Strasse, 03.08.2021, 1 ♀; Richtung Klek, 02.06.2022, 4 ♂, 4 ♀; Richtung Senj Strasse ("Insektenzoo"), 05.06.2022, 1 ♂, 3 ♀ (Kovac leg.) (SMNF).

Remarks. Identification confirmed by study of the aculeus apex (fig. 2, *c*).

Urophora jaculata Rondani, 1870

Merz, Korneyev, 2004.

Remarks. Not represented in our material. Larvae induce galls in flower heads of *Centaurea solstitialis* in Italy and Greece, and certainly in Croatia, but exact collection or literature data based on which B. Merz recorded this species from here, cannot be currently traced.

Urophora lopholomae White & Korneyev, 1989* (figs 2, *b*, *d*)

Material. Karlovac: Modruš: Draga, 03.06.2022, 6 ♂, 11.06.2022, 1 ♀; Lug, 27.05.2022, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Identification confirmed by study of the aculeus apex (fig. 2, *d*).

Urophora quadrifasciata (Meigen, 1826)

Strobl, 1893: 125; 1900: 624 — Zara.

Material. Karlovac: Modruš: Draga, 03.06.2022, 1 ♀; Lug, 27.05.2022, 1 ♂, 1 ♀; bei Senj Strasse, 03.08.2021, 2 ♀; Richt. Lug, 02.08.2021, 3 ♂, 1 ♀; Richtung "Insektenzoo", 28.07.2021, 1 ♂, 1 ♀; Tržan Berg, 25.07.2021, 1 ♂; Wiese oberhalb Lug, 22.05.2022, 2 ♂ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Centaurea* spp. (Asteraceae).

Urophora solstitialis (Linnaeus, 1758)

Strobl, 1893: 125; 1900: 624 (*Trypeta*) — Zara; Bjeliš, 2007: 374.

Remarks. Not represented in our material. Larvae infest flower heads of *Carduus* spp. (Asteraceae). Needs confirmation: misidentification is possible.

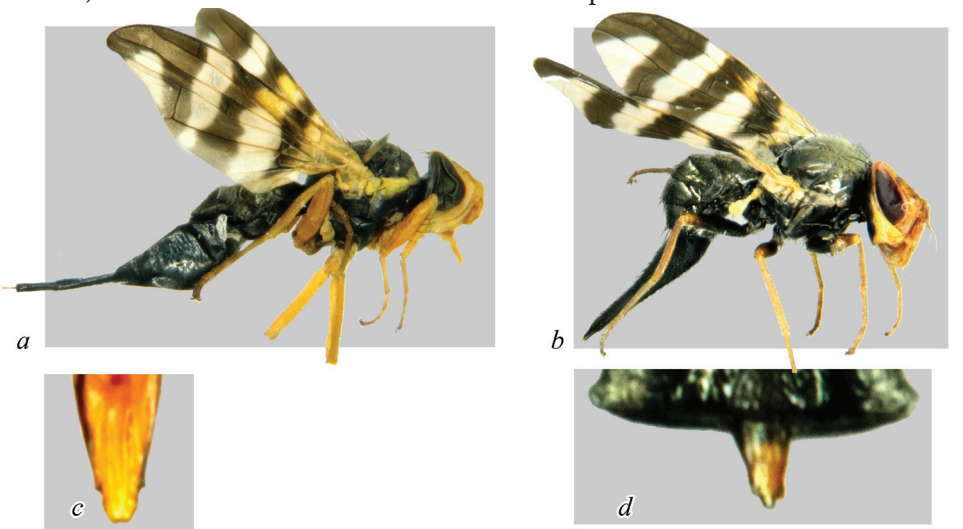

Fig. 2. *Urophora jaceana* (*a*, *c*) and *U. mauritanica* (*b*, *d*) female: *a*–*b* — habitus right; *c*–*d* — aculeus apex.

Urophora stylata (Fabricius, 1775)

Bjeliš, 2007: 374; Mazzon et al., 2010: 314.

Remarks. Not represented in our material. Larvae infest flower heads of *Cirsium arvense* and *Ci. vulgare* (Asteraceae).

Urophora terebrans (Loew, 1851)

Strobl, 1893: 125; 1900: 624 (*Urophora macrura* — misidentification) — "Dalmatien".

Remarks. Not represented in our material. Strobl (1900) mentions this species "aus *Onopordon illyricum*", from which it can be identified as *U. terebrans* rather than *U. mauritanica*, the senior synonym of *U. macrura*.

Tephritinae Noeetini

Ensina sonchi (Linnaeus, 1767)

Bjeliš, 2007: 371.

Remarks. Not represented in our material. Larvae infest flower heads of various Cichorieae (Asteraceae).

Hypenidium graecum Loew, 1862

Strobl, 1893: 124; 1900: 623 (*Hemilea novakii*) — "Lesina"; Bjeliš, 2007: 372.

Material. Split-Dalmatia, "Ragusa / Juli", "Hemilea Novakii / Strobl / det. Hendel" (NHMW).

Remarks. Larvae infest flower heads of *Lactuca* (Asteraceae).

Noeeta pupillata (Fallén, 1814)

Bjeliš, 2007: 372.

Remarks. Not represented in our material. Larvae infest flower heads of *Hieracium* spp. (Asteraceae).

Tephritinae Tephrellini

Aciura coryli (Rossi, 1794)

Strobl, 1893: 123, 1900: 623 (*Aciura femoralis*) — Split; Bjeliš, 2007: 371.

Material. Karlovac: Modruš: bei Senj Strasse, 03.08.2021, 1 ♂, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae infest flowers of *Phlomis* and *Ballota* (Lamiaceae) (Merz, 1994).

Oedaspis multifasciata (Loew, 1850)

Hendel, 1927: 85; Merz, Korneyev, 2004.

Remarks. Not represented in our material. Loew (1862) mentions this species from "nördliche Italien", but Hendel (1927) clarifies this as "Istrien", which currently is in Croatia. Unfortunately, however, the material on which this record was based has not been found either in MNKB or in NHMW. Larvae induce rhizome bud galls on psammophilous *Artemisia* spp. (Asteraceae) (Korneyev, 1986).

Oxyaciura tibialis (Robineau-Desvoidy, 1830)

Strobl, 1893: 123, 1900: 623 (*Aciura*) — Zara; Merz, Korneyev, 2004 (*Oxyaciura*); Bjeliš, 2007: 372 (*Oxiaciura*).

Material. Karlovac: Modruš: Richt. Lug, 02.08.2021, 2 ♂ (Kovac leg.) (SMNF).

Remarks. Larvae infest flowers of *Lavandula*, *Nepeta* and *Rosmarinus* (Lamiaceae) (Merz, 1994).

Tephritinae Tephritini

Acanthiophilus helianthi (Rossi, 1794)

Strobl, 1893: 125, 1900: 626 (*Tephritis*) — Zara; Langhoffer, 1928 (*Urellia eluta*); Mihályi, 1959: 360; Bjeliš, 2007: 371.

Material. Karlovac: Modruš: "Insektenzoo", 27.07.2021, 2 ♀; "Insektenzoo", 11.08.2021, 5 ♀; Feuchtgebiet vor Lug, 02.08.2021, 1 ♂, 1 ♀; Klette, 27.07.2021, 1 ♀; Richt. Lug, 02.08.2021, 3 ♂, 8 ♀; Richtung Klek, 12.02.2021, 3 ♀; Tržan Berg, 25.07.2021, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Centaurea* spp. (Asteraceae) and some other related genera.

Acinia corniculata (Zetterstedt, 1819)*

Material. Karlovac: Modruš: Draga, 13.08.2021, 1 ♀, 18.08.2022, 2 ♂, 3 ♀; Lug, 16.08.2022, 2 ♂, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Centaurea jacea* (Asteraceae).

Actinoptera mamulae (Frauenfeld, 1855)

Frauenfeld, 1855: 16, 1857: 549 (*Trypeta*); Strobl, 1900: 625 (*Tephritis*); Merz, Korneyev, 2004.

Material. Type. Syntypes: 3 ♂: Split-Dalmatia: "Mamulae / det. Frauenf.", "Dalmatia / Alte Sammlung", [silver square], 1 ♀, "Mamulae / det. Schiner", 1 ♂: "Dalmat. / Coll. Egger", Mamulae det. Egger"; 1 ♂, 1 ♀: "Dalmatien", "Mamulae / Alte Sammlung" (NHMW); Tučepi env., 1 ♀ (J. Dirlbek) (NMP).

Campiglossa bidentis (Robineau-Desvoidy, 1830)

Strobl, 1893: 125, 1900: 625 (*Tephritis elongatula*) — Lesina; Langhoffer, 1928 (*Oxyna elongatula*); Bjeliš, 2007: 371 (*Dioxyna*).

Material. Karlovac: Modruš: Richtung Senj Strasse ("Insektenzoo"), 21.05.2022, 1 ♀, 05.06.2022, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Bidens* spp. and *Tagetes* spp. (Asteraceae).

Campiglossa misella (Loew, 1869)

Bjeliš, 2007: 371.

Material. Karlovac: Modruš: Feuchtgebiet vor Lug, 02.08.2021, 2 ♂, 9 ♀; bei Senj Strasse, 03.08.2021, 3 ♂, 3 ♀ (Kovac leg.) (SMNF).

Remarks. Associated with *Artemisia vulgaris* (Asteraceae).

Campiglossa producta (Loew, 1844)

Langhoffer, 1928 (*Oxyna tesselata*); Bjeliš, 2007: 371.

Material. Karlovac: Modruš: Lug, 16.08.2022, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Sonchus* spp. and some other Cichorieae plants (Asteraceae).

Campiglossa punctella (Fallén, 1820)

Strobl, 1904: 559 (*Tephritis punctella*).

Remarks. Not represented in our material.

Capitites ramulosa (Loew, 1844)

Schiner, 1864: 172; Strobl, 1900: 626 (*Tephritis*).

Material. Dalmatia-Split: "ramulosa Loew* / 2537 / Ragusa Parr.", 1 ♂ (MNKB).

Remarks. Larvae infest flower heads of *Phagnalon rupestre* (Asteraceae) (Merz, 1992). Schiner (1864) and Strobl (1900) only refer to Loew's data from "Dalmatien" but mention no material. This record was apparently based on the MNKB specimen.

Oxyna flavipennis (Loew, 1844)

Langhoffer, 1928 (*Oxyphora flava*); Mihályi, 1959: 356.

Material. Karlovac: Modruš: bei Autobahn, 24.05.2022, 1 ♂, 2 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae induce spherical rhizome galls on *Achillea* spp. (Asteraceae).

Oxyna parietina (Linnaeus, 1758)*

Material. Karlovac: Modruš: bei Autobahn, 24.05.2022, 1 ♂, 2 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae feed inside the upper half of stems on *Artemisia vulgaris* (Asteraceae) inducing no galls.

Spatulina sicula Rondani, 1856

Merz, Korneyev, 2004.

Remarks. Not represented in our material. Larvae induce terminal stem galls on *Phagnalon* spp. (Persson, 1976).

Sphenella marginata (Fallén, 1814)

Langhoffer, 1928; Merz, Korneyev, 2004; Bjeliš, 2007: 372.

Remarks. Not represented in our material. Larvae infest flower heads of *Senecio* spp. and related genera (Asteraceae).

Tephritis bardanae (Schrank, 1781)

Langhoffer, 1928; Bjeliš, 2007: 372.

Remarks. Not represented in our material. Either correct identification or misidentification of *T. zernyi*. Larvae infest flower heads of *Arctium tomentosum* and possibly *A. lappa* (Asteraceae).

Tephritis carmen Hering, 1937

Bjeliš, 2007: 373.

Material. Karlovac: Modruš: Draga, 20.05.2022, 1 ♂ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Podospermum* and *Scorzonera* spp. (Asteraceae) (Merz, 1994).

Tephritis cometa (Loew, 1844)

Mazzon et al., 2010: 314 — Istria.

Remarks. Not represented in our material. Larvae infest flower heads of *Cirsium* spp. (Asteraceae).

Tephritis conura (Loew, 1844) (figs 3, *a–b*)

Strobl, 1893: 125, 1900: 625 — Zara.

Material. Karlovac: Modruš: Lug, 02.08.2021, 3 ♂, 1 ♀, 22.05.2022, 2 ♂, 16.08.2022, 1 ♂; bei Senj Strasse, 03.08.2021, 1 ♂; Richt. Lug, 06.08.2021, 3 ♂, 1 ♀; Richtung Senj Strasse ("Insektenzoo"), 21.05.2022, 1 ♂ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Cirsium* spp. (Asteraceae). *Tephritis conura* can be easily differentiated from other species of the genus by the combination of brown to black posterior notopleural and white posterior orbital setae.

Tephritis dilacerata (Loew, 1846)

Langhoffer, 1928.

Remarks. Not represented in our material. Larvae infest flower heads of *Sonchus arvensis* and *S. palustris* (Asteraceae).

Tephritis dioscurea (Loew, 1856)

Langhoffer, 1928.

Remarks. Not represented in our material. Larvae infest flower heads of *Achillea millefolium* (Asteraceae).

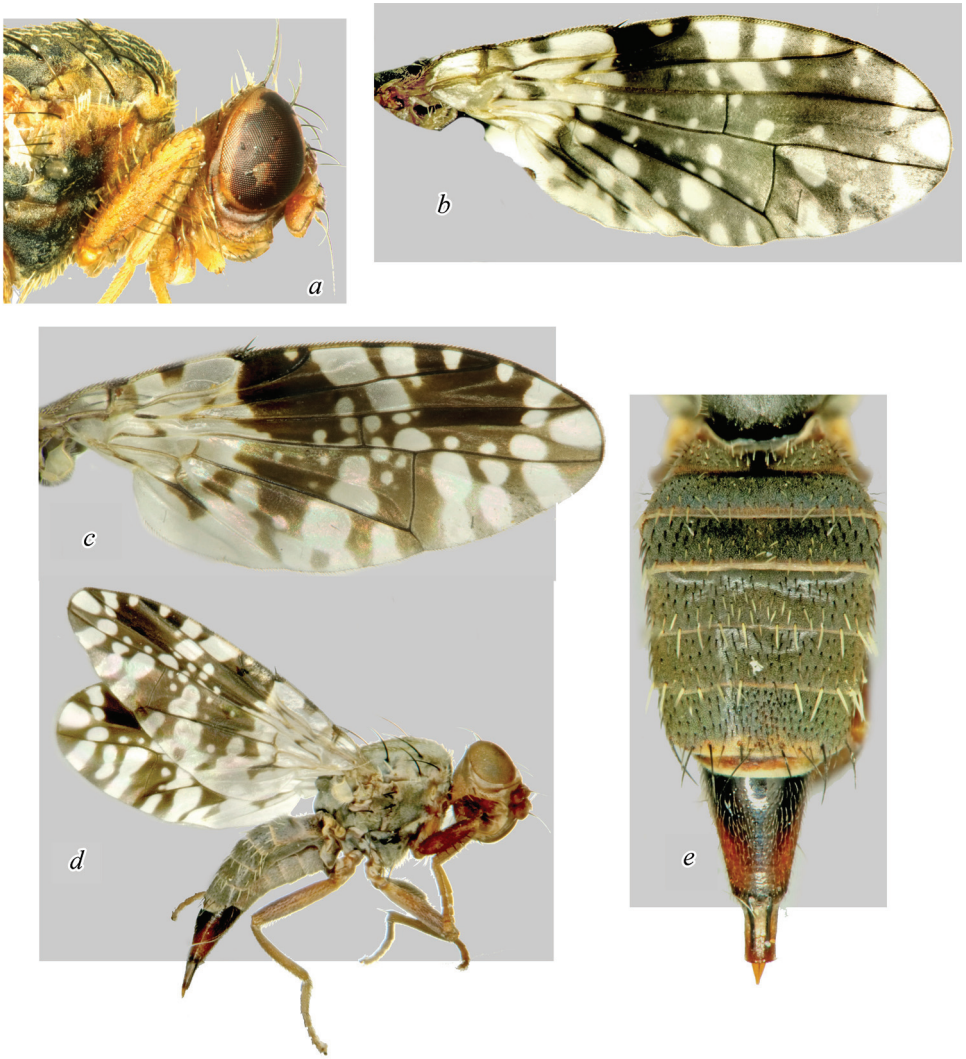

Fig. 3. *Tephritis conura* (*a*–*b*) and *T. fallax* ♀ (*c*–*e*): *a* — head and thorax right; *b*, *c* — wing; *d* — habitus right; *e* — abdomen dorsal.

Tephritis fallax (Loew, 1844)* (figs 3, *c–e*)

Material. Karlovac: Modruš: Richtung Senj Strasse ("Insektenzoo"), 05.06.2022, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Leontodon hispidus* (Asteraceae) (Merz, 1994). *Tephritis fallax* can be easily recognized from closely related species with similar wing patterns by its black setulose abdominal tergites (fig. 3, *e*).

Tephritis formosa (Loew, 1844)

Langhoffer, 1928; Bjeliš, 2007: 373.

Remarks. Not represented in our material. Larvae infest flower heads of *Sonchus oleraceus* (Asteraceae).

Tephritis hyoscyami (Linnaeus, 1758)*

Material. Karlovac: Modruš: hinterm Haus (Burgberg), 02.06.2022, 1 ♂; Richtung Klek, 04.06.2022, 2 ♂ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Carduus crispus*, *Ca. defloratus*, *Ca. personata*, and *Ca. acanthoides*. (Asteraceae) (Merz, 1994).

Tephritis leontodontis (DeGeer, 1776)

Strobl, 1900: 625 — Ragusa.

Remarks. Not represented in our material. Larvae infest flower heads of *Leontodon autumnalis*, *L. helveticus*, and *L. hispidus* (Asteraceae) (Merz, 1994).

Tephritis matricariae (Loew, 1844) (figs 4, *d–e*)

Bjeliš, 2007: 372.

Material. Karlovac: Modruš: Draga, 20.05.2022, 3 ♂, 11.06.2022, 1 ♂ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Crepis foetida*, *Cr. taraxacifolia*, and *Cr. vesicaria* (Asteraceae) (Merz, 1994).

Tephritis neesii (Meigen, 1830)

Strobl, 1904: 559 (*Tephritis conjuncta*) — Zara, Lesina.

Material. Karlovac: Modruš: Draga, 03.06.2022, 1 ♂; bei Autobahn, 24.05.2022, 1 ♂; Richtung Klek, 02.06.2022, 3 ♂; Richtung Senj Strasse ("Insektenzoo"), 21.05.2022, 2 ♂, 05.06.2022, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Leucanthemum vulgare* (Asteraceae).

Tephritis postica (Loew, 1844)

Strobl, 1904: 559 — Zara.

Remarks. Not represented in our material.

Tephritis praecox (Loew, 1844)

Strobl, 1904: 559 — Zara; Bjeliš, 2007: 373.

Remarks. Not represented in our material. Larvae infest flower heads of *Calendula arvensis* (Asteraceae) (Merz, 1994).

Tephritis pulchra (Loew, 1844)

Strobl, 1904: 559 — Zara; Langhoffer, 1928.

Remarks. Not represented in our material. Larvae induce flowerhead galls on *Podospermum canum* and *P. laciniatum* (Asteraceae) (Merz, 1994; Freidberg, Kütük, 2004).

Tephritis ruralis (Loew, 1844)

Langhoffer, 1928.

Remarks. Not represented in our material. Larvae infest flower heads of *Hieracium pilosella* and *H. lactuella* (Asteraceae) (Merz, 1994).

Tephritis separata Rondani, 1871 (figs 4, *a–c*)

Merz, Korneyev, 2004; Bjeliš, 2007: 372 (*T. divisa*), 373 (*T. separata*).

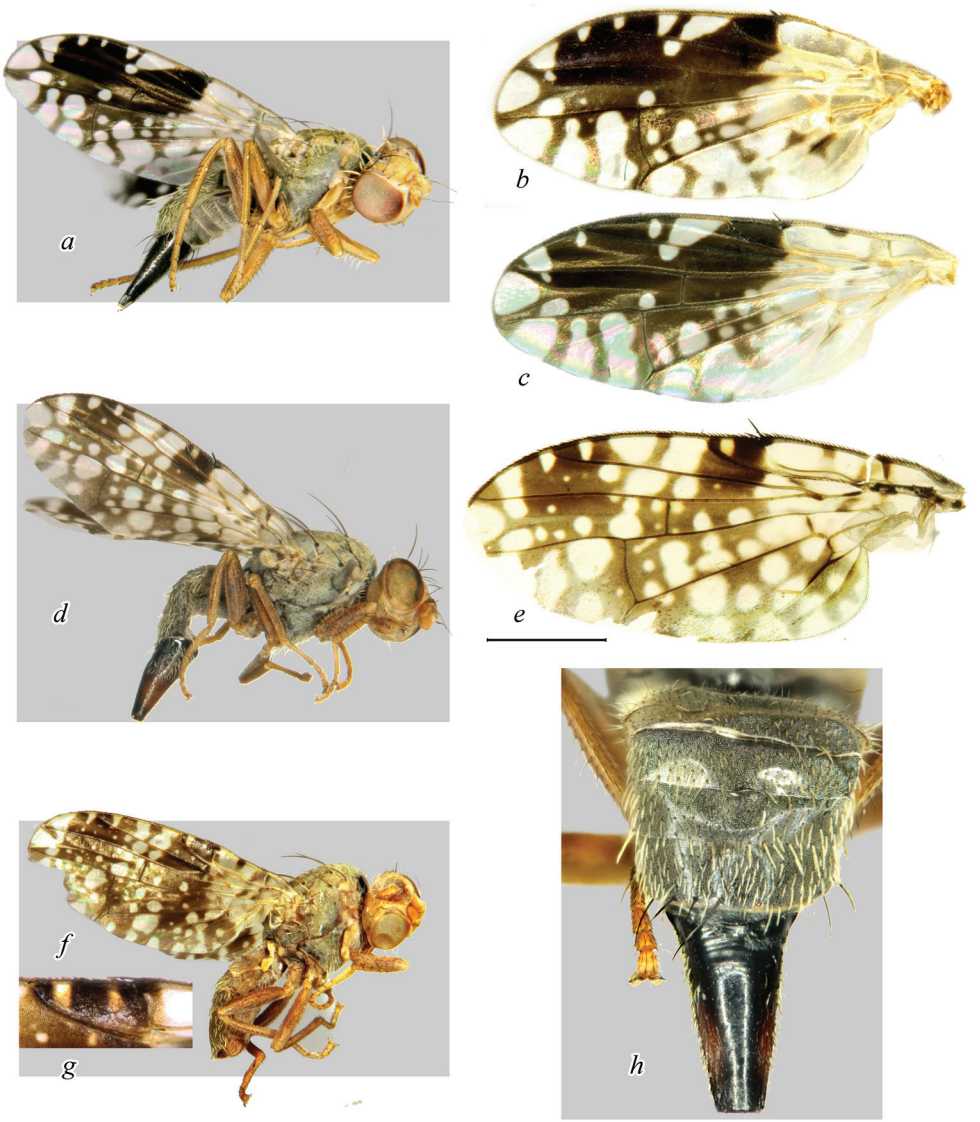

Fig. 4. *Tephritis separata* (*a–c*), *T. matricariae* ♀ (*d–e*) and *T. truncata* ♀ (*f–h*): *a*, *d*, *f* — habitus right; *b*, *c*, *e* — wing; *g* — pterostigma, enlarged; *h* — abdomen dorsal.

Material. Karlovac: Modruš: Draga, 11.06.2022, 3 ♂, 1 ♀; Feuchtgebiet vor Lug, 02.08.2021, 3 ♂, 1 ♀; bei Autobahn, 24.05.2022, 1 ♂; bei Senj Strasse, 03.08.2021, 1 ♀; Wiese oberhalb Lug, 22.05.2022, 1 ♂ (Kovac leg.) (SMNF).

Remarks. Our material shows a complete range of wing pattern variability between current species concepts of *T. divisa* and *T. separata* and certainly all belong to one species. Specimens listed by Bjeliš (2007) as *T. divisa* and *T. separata* often have the same label data and thus very possibly are all conspecific. Additional study of *T. divisa* in its type locality is needed to clarify if it and *T. separata* represent different species or merely variations of the same species.

Tephritis simplex (Loew, 1844)

Merz, Korneyev, 2004.

Remarks. Not represented in our material. Larvae infest flower heads of *Crepis albida* (Asteraceae) (Merz, 1994).

Tephritis stictica (Loew, 1862)

Strobl, 1904: 559 — Zara.

Remarks. Not represented in our material. Larvae infest flower heads of *Otanthus maritimus* (Asteraceae) (Rivosecchi, 1957).

Tephritis truncata (Loew, 1844)* (figs 4, *f–h*)

Material. Karlovac: Modruš: Lug, 22.05.2022, 1 ♂ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Leontodon crispus*, *L. incanus*, and *L. tenuiflorus* (Asteraceae) (Merz, 1994).

Tephritis vespertina (Loew, 1844)

Strobl, 1904: 559 (*Tephritis conjuncta*) — Lesina.

Remarks. Not represented in our material.

Tephritis zernyi Hendel, 1927* (fig. 5)

Material. Karlovac: Modruš: "Insektenzoo", 30.07.2021, 1 ♂; Draga, 11.06.2022, 1 ♀; Klette, ca. 2.8. geschluepft, reared from *Arctium minus,* 05.08.2021, 16 ♂, 12 ♀; Richtung "Insektenzoo", 27.07.2021, 1 ♀; Richtung Klek, 02.06.2022, 4 ♂; Richtung Lug, 27.05.2022, 1 ♀; Richtung Senj Strasse ("Insektenzoo"), 21.05.2022, 4 ♂, 2 ♀, 05.06.2022, 1 ♂, 2 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Arctium minus* (Asteraceae) (Merz, 1994; Diegisser et al., 2004: as "host-race of *T. bardanae*"). It differs from closely related *T. bardanae* by the longer ovipositor (aculeus length >1.3) as well as more yellowish, sometimes entirely reddish-yellow body and base of cell dm with more developed wing pattern. In this study, some specimens also have been reared from *A. minus*.

Trupanea amoena (Frauenfeld, 1857)

Frauenfeld, 1857: 542 (*Trypeta*); Strobl, 1893: 125, 1900: 626 (*Tephritis parisiensis*) — Zara; Langhoffer, 1928 (*Urellia*); Mihályi, 1959: 358; Merz, Korneyev, 2004; Bjeliš, 2007: 374.

Remarks. Not represented in our material.

Trupanea stellata (Fuessly, 1775)

Strobl, 1893: 125, 1900: 626 (*Tephritis*) — Zara; Langhoffer, 1928 (*Urellia*); Bjeliš, 2007: 374.

Remarks. Not represented in our material.

Fig. 5. *Tephritis zernyi*: *a* — habitus right; *b*— wing; *c* — abdominal tergites 4–6 and oviscape dorsal.

Tephritinae Terelliini

Chaetorellia acrolophi White & Marquardt, 1989* (fig. 6)

Material. Karlovac: Modruš: Richtung Klek, 02.06.2022, 1 ♀; Richtung Senj Strasse ("Insektenzoo"), 05.06.2022, 1 ♂ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Centaurea vallesiaca* and *Ce. maculosa* [= *Ce. stoebe*] (Asteraceae) (Merz, 1994).

Chaetorellia jaceae (Robineau-Desvoidy, 1830)

Strobl, 1893: 125; 1900: 624 (*Trypeta*); Merz, Korneyev, 2004; Bjeliš, 2007: 371.

Material. Karlovac: Modruš: Draga, 03.06.2022, 1 ♀, 11.06.2022, 1 ♂, 2 ♀; Lug, 27.05.2022, 1 ♂, 16.08.2022, 1 ♂; bei Senj Strasse, 03.08.2021, 3 ♂; Richt. Lug, 02.08.2021, 3 ♂; Richtung "Insektenzoo", 27.07.2021, 1 ♀; Richtung Klek, 12.08.2021, 1 ♀, 02.06.2022, 2 ♂; Richtung Senj Strasse ("Insektenzoo"), 05.06.2022, 1 ♀; Tržan Berg, 25.07.2021, 3 ♀; Wiese oberhalb Lug, 22.05.2022, 2 ♂ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Centaurea jacea*, *Ce. splendens* and *Ce. nigra* (Asteraceae) (Merz, 1994).

Chaetorellia loricata (Rondani, 1870)*

Material. Karlovac: Modruš: Draga, 03.06.2022, 3 ♂, 2 ♀, 11.06.2022, 1 ♀; Lug, 27.05.2022, 1 ♂; Richtung Senj Strasse ("Insektenzoo"), 21.05.2022, 1 ♀; Tržan Berg, 25.07.2021, 1 ♂ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Centaurea scabiosa*, *Ce. alpestris* and *Ce. tenuifolia* (Asteraceae) (Merz, 1994).

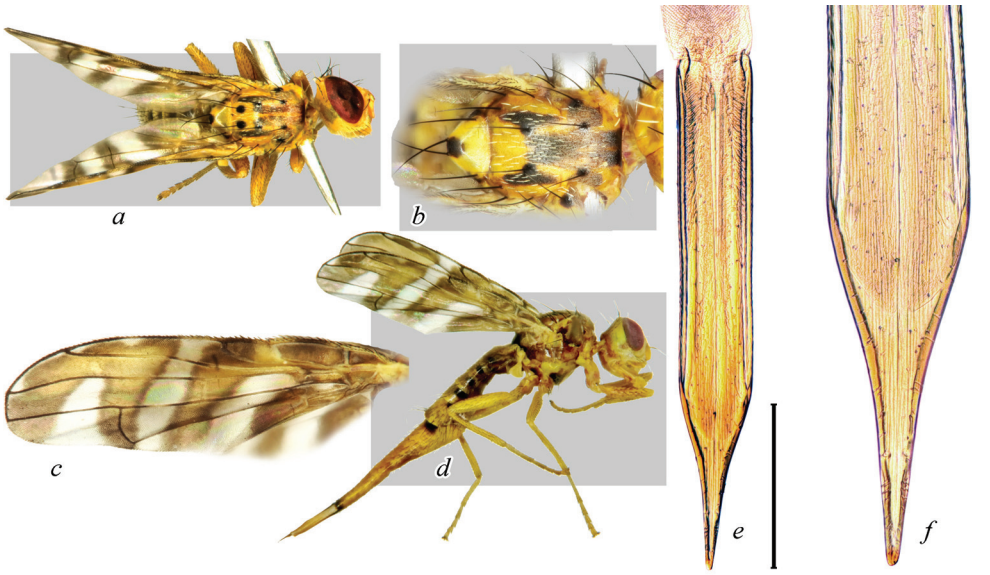

Fig. 6. *Chaetorellia acrolophi* ♂ (*a*, *c*) and ♀ (*b*, *d*–*f*): *a* — habitus dorsal; *b* — mesonotum dorsal; *c* — wing; *d* — habitus right; *e* — aculeus; *f* — same, apex enlarged. Scale bar: 0.5 mm.

Chaetostomella sp. ex ***cylindrica*** aggr.

Mihályi, 1959: 347 (*C. onotrophes*); Bjeliš, 2007: 371.

Material. Karlovac: Modruš: "Insektenzoo", 30.07.2021, 1 ♂; Draga, 20.05.2022, 1 ♂, 11.06.2022, 1 ♂, 18.08.2022, 2 ♂; Lug, 02.08.2021, 2 ♂, 3 ♀, 22.05.2022, 1 ♂, 27.05.2022, 2 ♂, 16.08.2022, 1 ♂; Richt. Lug, 06.08.2021, 1 ♂, 1 ♀; Richtung "Insektenzoo", 27.07.2021, 2 ♂, 2 ♀; Richtung Klek, 02.06.2022, 4 ♂, 3 ♀; Richtung Senj Strasse ("Insektenzoo"), 05.06.2022, 3 ♂, 3 ♀; Richtung Senj Strasse ("Insektenzoo"), 21.06.2022, 2 ♂; Wiese oberhalb Lug, 22.05.2022, 1 ♀ (Kovac leg.) (SMNF).

Remarks. These specimens belong to an aggregation of numerous "host races" or cryptic species associated with different host plants, at least two of which occur in mainland Europe. They are poorly distinguishable based on morphological characters that broadly overlap. One of them is associated with *Centaurea jacea* and *Ce. trichocephala*, and the other with *Cirsium oleraceum* and possibly more species of *Cirsium* and *Carduus*.

Orellia falcata (Scopoli, 1763)

Bjeliš, 2007: 372.

Material. Karlovac: Modruš: Draga, 20.05.2022, 1 ♀; Draga, 03.06.2022, 1 ♂, 1 ♀; beim Brunnen, 06.06.2022, 1 ♂; Richtung Senj Strasse ("Insektenzoo"), 05.06.2022, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae bore stems of *Tragopogon* spp.

Terellia colon (Meigen, 1826) (figs 7, *a*–*b*)

Strobl, 1893: 125; 1900: 624 (*Trypeta*) — Zara.

Material. Karlovac: Modruš: Draga, 03.06.2022, 1 ♀; Feuchtgebiet vor Lug, 02.08.2021, 2 ♀; Richtung "Insektenzoo", 28.07.2021, 1 ♀; Tržan Berg, 25.07.2021, 2 ♂, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Centaurea scabiosa* (Asteraceae) (Merz, 1994).

Terellia gynaecochroma (Hering, 1937)

Strobl, 1904: 559 (*Trypeta lappae*) — Zara; Bjeliš, 2007: 373.

Remarks. Not represented in our material. Larvae bore in receptacles and stems (or receptacles only) of *Onopordum* spp. (Asteraceae).

Terellia longicauda (Meigen, 1838)* (figs 7, *c–g*)

Material. Karlovac: Modruš: Feuchtgebiet vor Lug, 02.08.2021, 1 ♂ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of *Cirsium decussatum* (= *Ci. polonicum*) and *Ci. eriophorum* (Asteraceae). This species can be easily distinguished from the closely related *T. serratulae* and its "host races" by its infuscated wings, bluish colour of freshly collected or live flies (greenish in *T. serratulae*), longer aculeus and phallus; and male lateral surstylus with long marginal setae, but no short setulae.

Terellia plagiata (Dahlbom, 1850)*

Material. Karlovac: Modruš: Draga, 11.06.2022, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Not represented in our material. Larvae bore in receptacles and then stems of *Centaurea scabiosa* (Asteraceae).

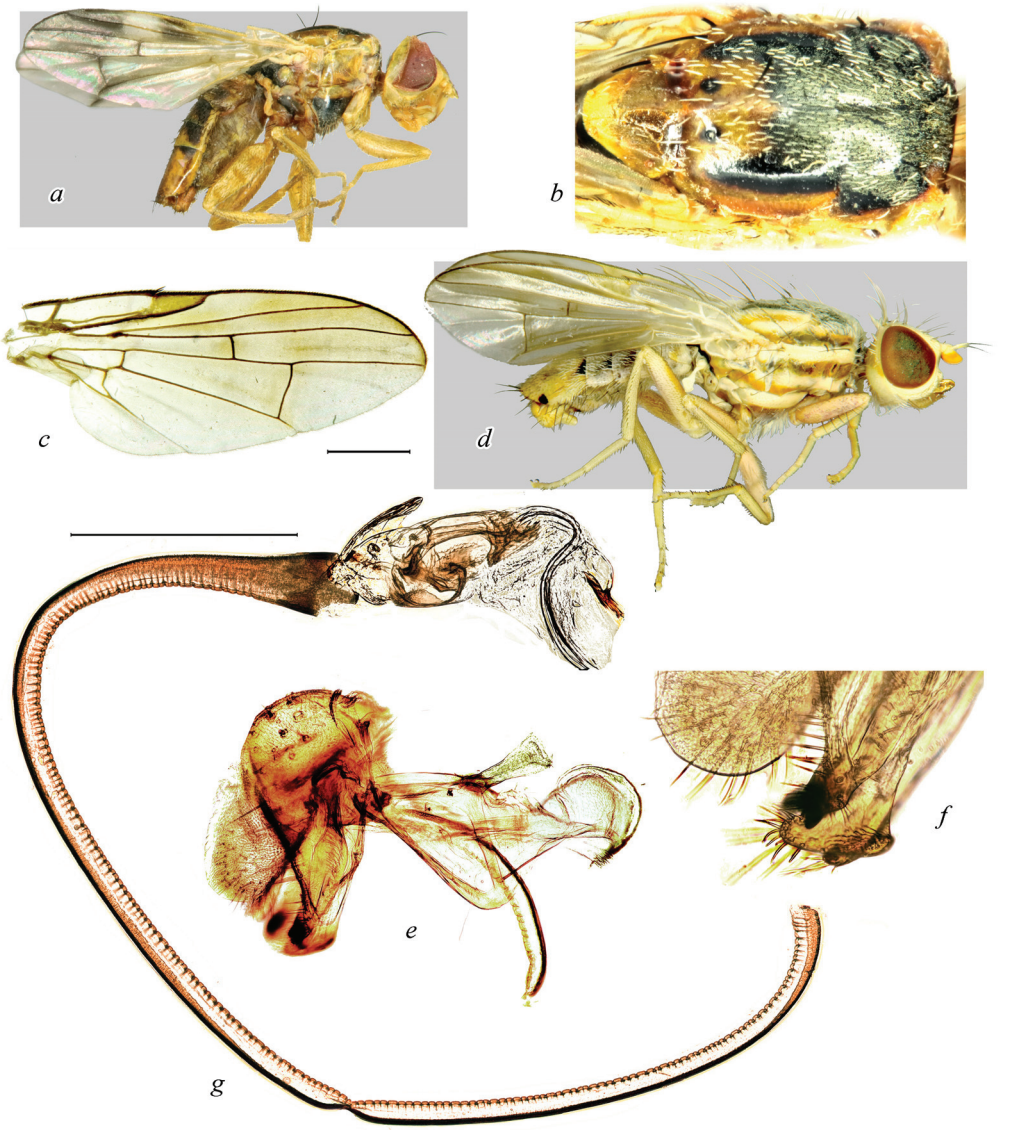

Fig. 7. *Terellia colon* ♂ (*a–b*) and *T. longicauda* ♂ (*c–g*): *a*, *d* — habitus right; *b* — mesonotum dorsal; *c* — wing; *e* — male postabdomen right (phallus detached); *f* — surstylus, enlarged; *g* — phallus. Scale bar: *c* — 1 mm, *e–g* — 0.5 mm.

Terellia sp. ex ***serratulae*** aggr.

Strobl, 1893: 125; 1900: 624 (*Trypeta*) — Lesina; Mihályi, 1959: 347; Bjeliš, 2007: 373.

Material. Istria: "Rovinj, CB363", "reared from *Cirsium vulgare*", 6.08.1963, 4 ♂, 4 ♀ (Zwölfer) (NMP); Karlovac: Modruš: Richtung "Insektenzoo", 28.07.2021, 2 ♀ (Kovac leg.) (SMNF).

Remarks. These specimens belong to an aggregation of numerous "host races" or cryptic species associated with different host plants, two of which occur in Europe. They are poorly distinguishable based on morphological characters that widely overlap. The specimens from Croatia belong to the complex of populations associated with *Cirsium* spp. in Southern Europe, but the populations from *Carduus* spp. that are believed to be "typical" *T. serratulae* occur mainly in Central and Northern Europe.

Terellia tussilaginis (Fabricius, 1775)

Bjeliš, 2007: 374.

Material. Karlovac: Modruš: "Insektenzoo", 27.07.2021, 3 ♂, 3 ♀, 30.07.2021, 9 ♂, 4 ♀, 11.08.2021, 2 ♂, 1 ♀; Richtung Klek, 02.06.2022, 1 ♀; ex *Arctium minus*, 27.07.2021, 2 ♂, 1 ♀; Draga, 31.07.2021, 1 ♂, 1 ♀; Klette, 27.07.2021, 4 ♂, 3 ♀; Lug, 16.08.2022, 1 ♂; Richt. Lug, 06.08.2021, 1 ♂, 3 ♀; Richtung "Insektenzoo", 28.07.2021, 1 ♀; Tržan Berg, 25.07.2021, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae infest seeds of *Arctium* spp. (Asteraceae).

Terellia virens (Loew, 1846)

Strobl, 1893: 125; 1900: 624 (*Trypeta*) — Lesina.

Remarks. Not represented in our material. Larvae infest flower heads of *Centaurea maculosa* [= *Ce. stoebe*] (Asteraceae).

Tephritinae Xyphosiini

Ictericodes zelleri (Loew, 1844)* (fig. 8)

Material. Karlovac: Modruš: "Insektenzoo", 30.07.2021, 1 ♂ (Kovac leg.) (SMNF).

Remarks. Larvae live in flower heads of *Pentanema squarrosum* (= *Inula conyzae*) (Merz, 1994).

Xyphosia miliaria (Schrank, 1781)

Mihályi, 1959: 351; Bjeliš, 2007: 374 (*Xiphosia*); Mazzon et al., 2010: 314.

Material. Karlovac: Modruš: "Insektenzoo", 30.07.2021, 5 ♂, 3 ♀, 11.08.2021, 2 ♂, 1 ♀; Draga, 31.07.2021, 1 ♂; Draga, 13.08.2021, 1 ♂; Feuchtgebiet vor Lug, 02.08.2021, 11 ♂, 2 ♀; Lug, 16.08.2022, 1 ♂, 2 ♀; bei Senj Strasse, 03.08.2021, 2 ♀; Richtung "Insektenzoo", 27.07.2021, 1 ♂; Richtung Klek, 12.08.2021, 1 ♀; Richtung Senj Strasse ("Insektenzoo"), 05.06.2022, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae infest flower heads of numerous European species of *Carduus* and *Cirsium*.

Trypetinae

Acidia cognata (Wiedemann, 1817)*

Material. Karlovac: Modruš: Draga, 13.07.2021, 1 ♂, 1 ♀; Draga, 31.07.2021, 3 ♂, 2 ♀, 18.08.2021, 2 ♂, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae mine leaves of *Tussilago farfara* and *Senecio* spp.

Anomoia purmunda (Harris, 1780)*

Material. Karlovac: Modruš: Draga, 31.07.2021, 1 ♂; Draga, 18.08.2022, 5 ♂; Feuchtgebiet Lug, 02.08.2021, 2 ♂, 1 ♀ (Kovac leg.) (SMNF).

Fig. 8. *Ictericodes zelleri* ♂: *a* — habitus dorsal; *b* — head left; *c* — wing; *d* — head dorsal; *d* — abdomen.

Remarks. Larvae infest fruits of *Crataegus*, *Cotoneaster* spp. and related species of the tribe Maleae (Rosaceae).

Carpomya vesuviana (Costa, 1854) (fig. 9)

Strobl, 1893: 125; 1900: 624 (*Orellia vesuviana*) — "Lesina"; Merz, Korneyev, 2004. Frauenfeld, 1867: 500 (*Orellia bucchichi*).

Material. Type. Holotype ♀ *Orellia bucchichi*: [Hvar = Lesina] "Dalmatien" "Bucchichi / Alte Sammlung" (NHMW) — here labelled as holotype.

Non-type. Material. Split-Dalmatia: "Dalmatien", "Frfld. / Dalm.", Bucchichi / Alte Sammlung", 10 ♂, "Schineri det. Frauenf.", 10 ♂, 7 ♀, "Lesina coll. Egger", Bucchichi det Egger", 2 ♀, "Bergenst.", "Bucchichi det Bergenst.", 3 ♀ "Buchichi / Alte Sammlung" 3 ♀: Curzola D.[almatien], 07.1927, 1 ♂ (Novak) (NHMW).

Remarks. Larvae infest fruits of *Ziziphus* spp. (Rhamnaceae).

The nominal species *Orellia bucchichi* was described by Frauenfeld based on a single female collected on fruits of *Ziziphys vulgaris* in a garden. Types of Frauenfeld's species are deposited mostly in the NHMW, but usually neither have red labels nor other designations indicating that they are name-bearing types. Furthermore, many of them were distributed

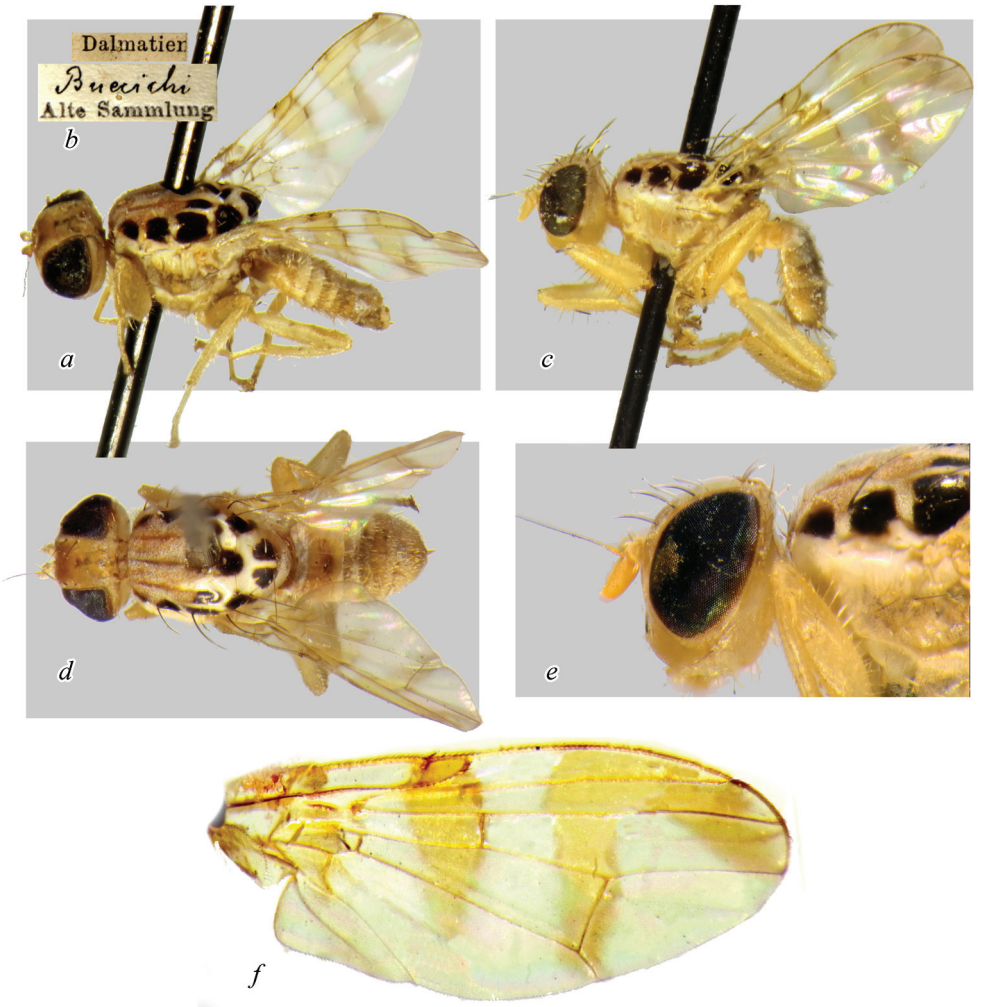

Fig. 9. *Carpomya vesuviana*: holotype ♀ *Orellia bucchichi* (*a*–*b*, *f*), topotypic ♂ (*c*) and ♀ (*d*–*e*): *a*, *c*, *d* — habitus (*a* — dorsal left, *c* — left; *d* — dorsal); *b* — *labels*; *e* — head left; *f* — wing.

among colleagues (Bergenstamm, Egger, etc.), aftewards also incorporated into the old collection ("Alte Sammlung") of the NHMW and thus could be syntypes or even holotypes. The specimens in the collection of NHMW are apparently topotypic with Frauenfeld's specimen, but almost all the females have labels indicating that they were not the specimen from which the species was described, except one ♀ (fig. 9, *a*), which has the labels (fig. 9, *b*) that do not contradict the idea that it is the ♀ identified by Frauenfeld as *bucchichi*. We therefore have labeled this specimen as the holotype. The specimens originally misattributed by Frauenfeld to a previously described similar species (*Carpomya schineri* Loew, 1856) were not mentioned in his description of *Orellia bucchichi* and thus neither they nor the other specimens listed above can be types of *O. bucchichi*.

Chetostoma*? *antiqua (Heer, 1849)

Gentilini et al., 2006: 9.

Remarks. A fossil species described from Croatia: Radoboi (Lower Miocene), compression fossil specimens (imprint of a wing) ("in der Grätzer Sammlung", not located).

Euleia heraclei (Loew, 1758)

Strobl, 1900: 624 (*Acidia*) — Ragusa.

Remarks. Not represented in our material. Larvae mine leaves of various Apiaceae.

Euleia rotundiventris (Fallén, 1814)* (figs 10, *a–b*)

Material. Karlovac: Modruš: Draga, 20.05.2022, 2 ♂; Lug, 22.05.2022, 2 ♂, 27.05.2022, 1 ♂ (Kovac leg.) (SMNF).

Remarks. Larvae mine leaves of *Angelica sylvestris*, *Aegopodium podagraria* and some other Apiaceae (Merz, 1994).

Hemilea dimidiata (Costa, 1844)* (figs 10, *c–d*)

Material. Karlovac: Modruš: bei Senj Strasse, 03.08.2021, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae mine leaves of *Taraxacum* sp. and *Lactuca* spp. (Asteraceae).

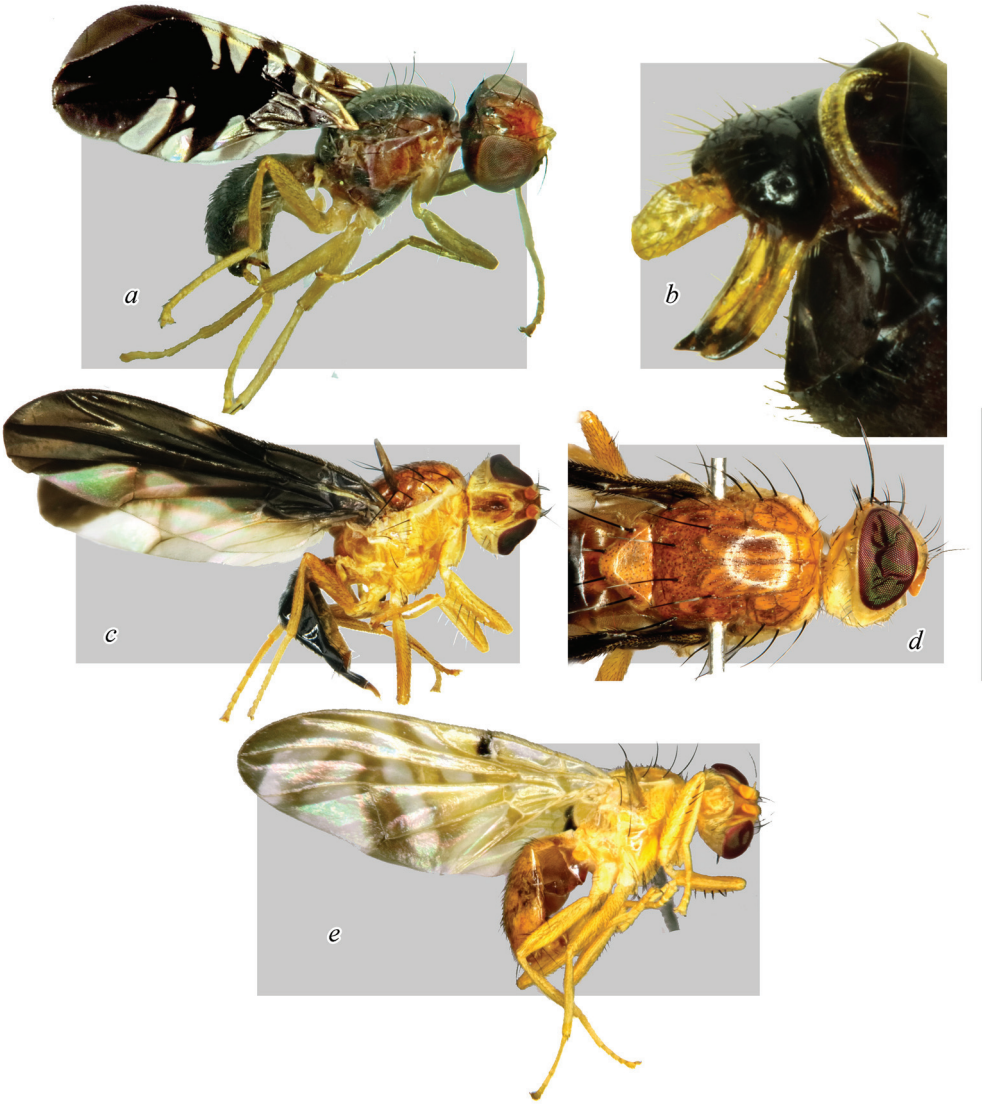

Fig. 10. *Euleia rotundiventris* ♂ (*a–b*), *Hemilea dimidiata* ♀ (*c–d*) and *Myoleja lucida* ♂ (*e*): *a*, *c*, *e* — habitus right; *b* — postabdomen right; *d* — head and mesonotum.

Myoleja lucida (Fallén, 1826)* (fig. 10, *e*)

Material. Karlovac: Modruš: Richtung Senj Strasse ("Insektenzoo"), 21.05.2022, 1 ♂ (Kovac leg.) (SMNF).

Remarks. Larvae infest fruits of *Lonicera* spp. (Caprifoliaceae).

Philophylla caesio (Harris, 1780)

Strobl, 1900: 624 (*Acidia*) — "Dalmatien".

Material. Karlovac: Modruš: Draga, 18.08.2022, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae mine leaves of *Urtica dioica* (Urticaceae).

Platyparea discoidea (Fabricius, 1787)

Merz, Korneyev, 2004.

Material. Karlovac: Modruš: Draga, 18.08.2022, 1 ♀ (Kovac leg.) (SMNF); "Mann 1868 Ragusa", 1 ♀ (NHMW).

Rhagoletis cerasi (Linnaeus, 1758)

Merz, Korneyev, 2004.

Material. Split-Dalmatia: Brela, 21.05.2022, 1 ♀ (Kovac leg.) (SMNF).

Remarks. Larvae infest fruits of *Lonicera* spp. (Caprifoliaceae) and *Prunus* spp. (Rosaceae).

Rhagoletis cingulata (Loew, 1862)

Bjeliš et al., 2016: 75.

Remarks. Larvae infest fruits of *Prunus* spp. (Rosaceae). Introduced pest.

Rhagoletis completa (Cresson, 1929)

Smit, Schaareman, 2015: 22.

Remarks. Larvae infest husks of *Juglans* spp. (Juglandaceae). Introduced pest.

Trypeta zoe Meigen, 1826

Merz, Korneyev, 2004.

Remarks. Not represented in our material. Larvae mine leaves of *Artemisia vulgaris*, *Senecio* spp. and other Asteraceae.

Ulidiidae

Ceroxys hortulana (Rossi, 1790)

Strobl, 1900: 621 — "Dalmatien"; Kameneva, 2008.

Material. "Kroatien", with number 19034, ♂ (Becker) and label "Ceroxys hyalinata J. Panzer" (Becker det.); Split-Dalmatia: "Dalmatien", with numbers 22984, 22985, 22987, 22990, 22993, 22995, 25.05.[year?], 3 ♂, 3 ♀ (Becker) (MNKB).

Euxesta notata (Wiedemann, 1830)*

Material. Split-Dalmatia: Gorni Muć, 43.6908, 16.4956, 500 m a. s. l., abandoned garden, 29.06–20.07.2014, 1 ♀, 11.08–15.09.2013, 1 ♀ (B. Kokan) (NMP).

Remarks. Invasive species of Nearctic origin currently recorded from Austria, Slovenia and Switzerland (Kameneva, Korneyev, 2017; Korneyev et al., 2018).

Herina frondescentiae (Linnaeus, 1758)

Strobl, 1904: 557 — Lesina; Soós, 1957: 396 — Fužine, Plitvica.

Remarks. Not represented in our material.

Herina gyrans (Loew, 1864)

Loew, 1864: 12 (*Ortalis*); 1868: 6 (*Tephronota*).

Material. Type. Syntypes *Ortalis gyrans*: Split-Dalmatia: 2 ♂, 2 ♀: "Dalmat. / Stein", "Coll. / H. Loew", "Type" [red label], "gy- / rans / Lw." (MNKB).

Herina nigrina (Meigen, 1826) (figs 11, *a–c*)

Kameneva, 2007: 414.

Material. Karlovac: Modruš: Draga, 13.08.2021, 1 ♂, 18.08.2022, 1 ♀; Lug, 02.08.2021, 1 ♀, 16.08.2022, 2 ♀; Richtung "Insektenzoo", 27.07.2021, 3 ♀ (Kovac leg.) (SMNF); Split-Dalmatia: "Dalmatia / Arbe", 06.1914, 1♀ (Maidl) (NHMW); "Kroatien / 40008", "Delnice", 17.08.1894, 1♀ (Becker) (ZMHB).

Herina lugubris (Meigen, 1826)

Strobl, 1900: 621, 1904: 527 (*Herina afflicta*) — Zara, Lesina; Soós, 1957: 396 — "Novi".

Remarks. Not represented in our material. The locality "Novi" is dubious (possibly, Novi Sad, Serbia). In addition, *H. lugubris* cannot be distinguished from some other species of the genus without studying male and female terminalia (Kameneva, 2007).

Herina scutellaris Robineau-Desvoidy, 1830

Strobl, 1900: 621 (*Tephronota rufipes*) — "Dalmatien", Zara, Krk: Sardone ("Kerkafälle"); Kameneva, 2007: 416.

Material. Split-Dalmatia: "Dalmat / Erber", "Coll. H. Loew, 1 ♂, 3 ♀ (MNKB).

Otites centralis (Fabricius, 1805)

Soós, 1957: 391 — Fužine.

Remarks. Not represented in our material.

Otites grata (Loew, 1856)

Loew, 1856: 50; Schiner, 1864: 71 (*Ortalis*); Strobl, 1900: 620. — "Dalmatien".

Material. Type. Holotype: ♂: Split-Dalmatia: "Asim. / M.", "Coll. / H. Loew", "Type" [red label], "gra- / ta / Lw." (MNKB). Non-type. Split-Dalmatia: "Dalm.", 1 ♂, 1 ♀ (ZSSM).

Otites lamed (Schrank, 1781)

Strobl, 1900: 620. — Zara.

Material. Karlovac: Modruš: Lug, 27.05.2022, 1 ♀ (Kovac leg.) (SMNF).

Otites ruficeps (Fabricius, 1805) (figs 11, *d–g*)

Strobl, 1900: 620. — Lesina.

Material. Karlovac: Modruš: Draga, 20.05.2022, 2 ♂; hinterm Haus (Burgberg), 02.06.2022, 1 ♂; Richtung Klek, 04.06.2022, 1 ♀; Richtung Senj Strasse ("Insektenzoo"), 21.05.2022, 2 ♂, 1 ♀ (Kovac leg.) (SMNF).

Remarks. All these specimens have a mostly yellow occiput and moderately narrow microtrichose crossbands on the abdominal tergites, which are diagnostic characters of *Otites ornata* (Meigen, 1826) (= *O. bacescui* Gheorghiu, 1987) the species occurring mainly in the Danube basin. However, the structure of its male surstyli and female spermatheca is

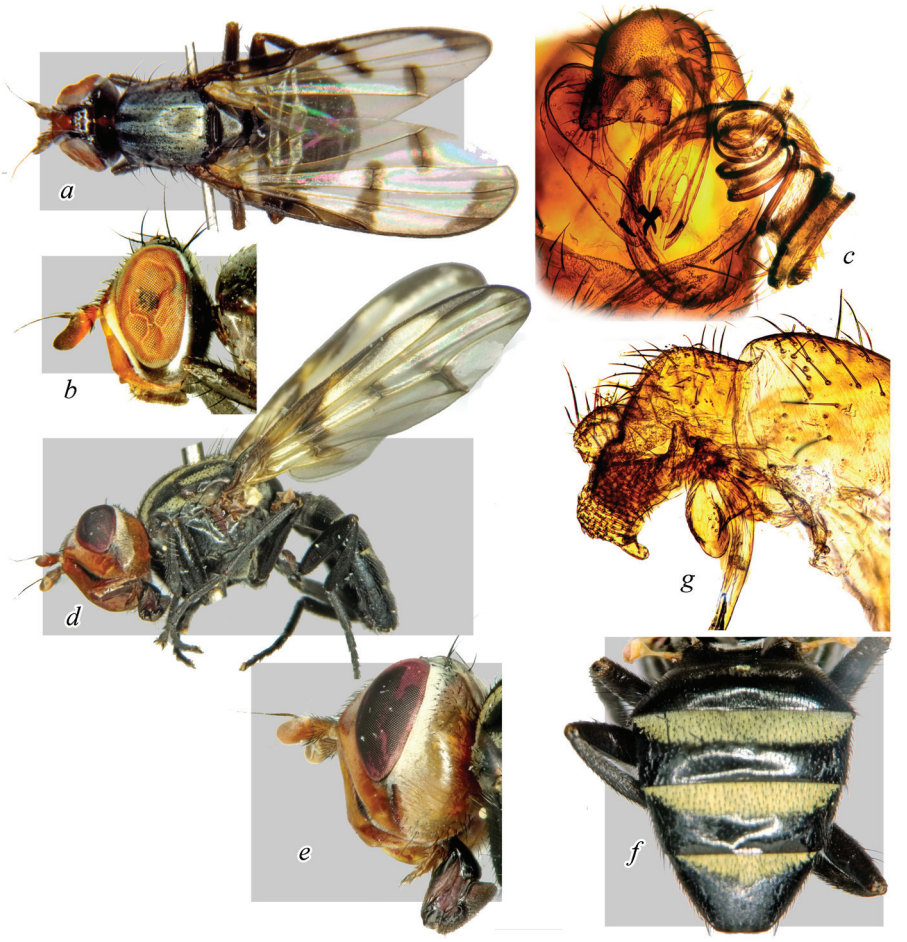

Fig. 11. *Herina nigrina* ♂ (*a*–*c*) and *Otites ruficeps* ♂ (*d*–*g*): *a* — habitus dorsal; *b* — head left; *c* —postabdomen posterior; d — habitus left; *e* — head left and posterior; *f* — abdomen dorsal; *g* — postabdomen right (phallus detached).

typical for *O. ruficeps* (= *O. formosa* auctt.), and such a combination of characters has been already known in a series of specimens from "Greece, Bgst. Coll." (NHMW) (Kameneva, 1997). Strobl (loc. cit.) possibly examined specimens also belonging to this morph.

Otites rivularis (Fabricius, 1805)*

Material. Karlovac: Modruš: Draga, 03.06.2022, 1 ♂, 1 ♀ (Kovac leg.) (SMNF).

Otites murina (Loew, 1864) (fig. 12)

Soós, 1957: 393 ("Karszt").

Material. Karlovac: Modruš: Lug, 27.05.2022, 1 ♀; Richtung Senj Strasse ("Insektenzoo"), 21.05.2022, 2 ♀ (Kovac leg.) (SMNF); Split-Dalmatia: Gorni Muć, 43.6908, 16.4956, 500 m a. s. l., abandoned garden, 16.03–11.04.2014, 2 ♂, 3 ♀, 11–27.04.2014, 5 ♂, 3 ♀ (B. Kokan) (NMP).

Physiphora alceae (Preyssler, 1792)

Strobl, 1900: 621, 1904: 557 (*Chrysomyza demandata*) — Solin, Lesina, Zara.

Remarks. Not represented in our material.

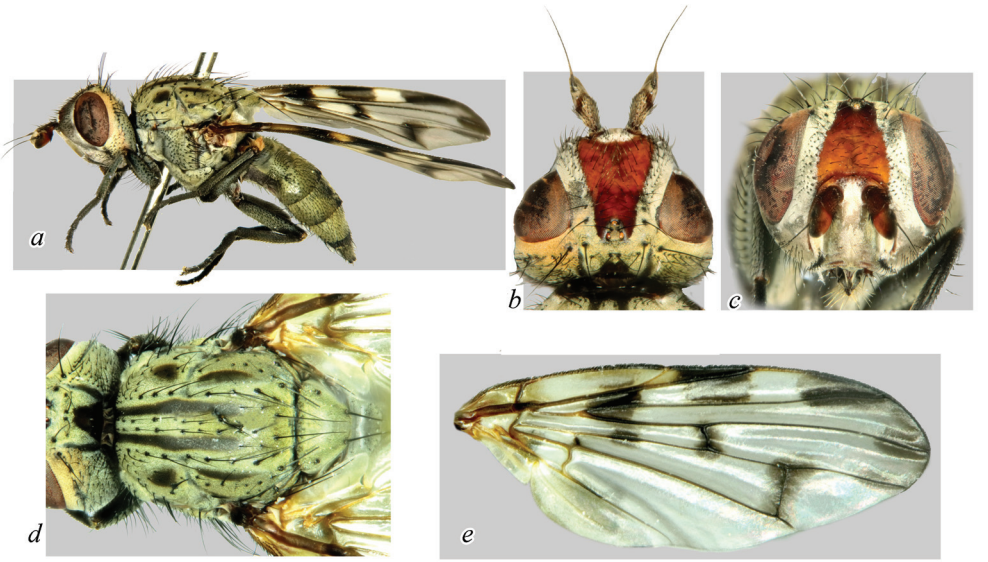

Fig. 12. *Otites murina* ♀: *a* — habitus left; *b* — head dorsal; *c* — same, anterior; *d* — mesonotum dorsal; *e* — wing.

Ulidia nigripennis (Loew, 1845)*

Material. Split-Dalmatia: Gorni Muć, 43.6908, 16.4956, 500 m a.s.l., abandoned garden, 27.05–22.06.2013, 1 ♂, 3 ♀, 22.06–13.07.2013, 1 ♀, 22.06–28.07.2013, 1 ♂ (B. Kokan) (NMP).

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