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First records of Anthomyzidae (Diptera) from Switzerland

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Eleven species of Anthomyzidae are recorded from Switzerland for the first time. Notes on their general distribution and biology are given. Swiss localities of *Anthomyza neglecta* COLLIN, 1944, and *A. socculata* (ZETTERSTEDT, 1847) represent new southernmost occurrence limits of these species. A female, probably belonging to *Anthomyza anderssoni* ROHÁČEK, 1984, is the most interesting record.

Keywords: faunistics, distribution, new records, Anthomyzidae

INTRODUCTION

The Anthomyzidae is a small group of Acalyptrate Diptera (the World fauna includes only 54 described species), related to Opomyzidae (MCALPINE, 1989; ROHÁČEK, 1994). The family includes slender, tiny flies with narrow wings, chiefly inhabiting damp grassland habitats. Anthomyzid larvae are phytosaprophagous to phytophagous and usually feed in leaf-sheaths of grasses (Poaceae), cut sedge and *Scirpus* (Cyperaceae), reed-mace (Typhaceae) and Juncaceae (FERRAR, 1987; ROHÁČEK 1992, 1996), often in dead plants or even in galls caused by other phytophagous parasites; more rarely they were recorded as mining in leaves and stems of dicotyledonous plants (e.g. *Paranthomyza*, *Anagnota*). Only one species (*Anthomyza albimana*) is known to develop in fungi (DELY-DRASKOVITS, 1972; CHANDLER, 1978). However, the biology is largely unknown in the majority of species and, hence, more diverse habitat and tropical requirements can be expected in the family as a whole.

Members of the family Anthomyzidae are widespread throughout the World but faunas of most biogeographical regions have hitherto been poorly studied. The European Anthomyzidae fauna is the best known, containing 8 genera and 25 species, although some additions can be yet expected in some insufficiently explored countries, particularly in southern Europe.

This paper was instigated by the preparation of the Catalogue of Swiss Diptera. Much to my surprise, no record of Anthomyzidae has been published from Switzerland so far. Consequently, all species mentioned below are new to the Swiss dipterous fauna.

MATERIAL AND METHODS

Almost all available material from Swiss collections has been examined. It is deposited in collections abbreviated as follows:

CGB – collection of Dr. G. BÄCHLI, Zürich

CBM – collection of Dr. B. MERZ, Zürich

ETHZ – Entomologische Sammlung, Eidgenössische Technische Hochschule Zürich.

SURVEY OF SPECIES RECORDED

Anthomyza albimana (MEIGEN, 1830)

Material examined: **VS**: Leuk, 1 ♀, 23.viii.–2.ix.1977, G. BÄCHLI leg. (CGB); Visp, 3 ♂♂, 13.–15.viii.1993, G. BÄCHLI leg. (CGB). **ZH**: Käferberg, 1 ♂, 19.–23.viii.1987, 1 ♀, 9.–13.ix.1987, M. GOSTELI leg. (CGB).

This mycetophagous species (DELY-DRASKOVITS, 1972) is widespread in Europe, ranging from Spain (CARLES-TOLRÁ, 1992) to NET in Russia (ANDERSSON, 1984a). It is also known from all neighbouring countries of Switzerland, viz. France, Germany, Austria (ANDERSSON, l.c.) and Italy (PAPP, 1995).

Anthomyza ? anderssoni ROHÁČEK, 1984

Material examined: **AG**: Umg. Lenzburg, 1 ♀, 29.viii.1932, ZÜRCHER leg. (ETHZ).

A poorly known species described from a single male from northern Italy (ROHÁČEK, 1984) and since only recorded (5 males) from the Czech and Slovak Republics (ROHÁČEK, 1995). The species is closely allied to *Anthomyza collini* ANDERSSON, 1976, differing by the shape of the male genitalia (gonostylus) and paler body colouring. The female of this species has not been described till now; the female recorded above is therefore identified with some doubts although certain differences against true *A. collini* were found (e.g. in the shape of abdominal tergum 8). The occurrence of *A. anderssoni* in Switzerland should be confirmed by males.

Anthomyza collini ANDERSSON, 1976

Material examined: **TI**: Biasca, 5 ♂♂, 5 ♀♀, 17.vi.1995, B. MERZ & G. BÄCHLI leg. (CGB); Biasca-Loderio, 350 m, 4 ♂♂, 17.vi.1995, B. MERZ & G. BÄCHLI leg. (CBM); Bolle di Magadino, 1 ♀, 19.vi.1995, B. MERZ & G. BÄCHLI leg. (CGB). **VS**: Baltschieder, Rotten-Ufer, 650 m, 1 ♂, 1 ♀, 17.v.1996, B. MERZ leg. (ETHZ); Gröne/Poutafontana, 510 m, 25 ♂♂, 7 ♀♀, 18.5.1996, MERZ & BÄCHLI leg. (CBM, ETHZ). **ZH**: Dietikon, 1 ♀, 13.vi.1991, G. BÄCHLI leg.; Embrach-Haumüli, 490 m, 1 ♀, 3.vii.1996, B. MERZ leg. (ETHZ); Robenhausen-Ried, 540 m, 1 ♀, 7.viii.1993, B. MERZ leg. (CBM); Zürich-Katzensee, 450 m, 1 ♀, 23.v.1995, B. MERZ leg. (ETHZ); Zürich-Katzensee, 440 m, 3 ♂♂, 6 ♀♀, 25.v.1996, B. MERZ leg. (ETHZ).

A rather common species, although less frequent and abundant than *A. gracilis* FALLÉN, 1823, preferably inhabiting reed growths in lowland marshes. Because previously confused with *A. gracilis* (ANDERSSON, 1976), its distribution is insufficiently known. It has reliably been only recorded from Spain (CARLES-TOLRA, 1992), Czech and Slovak Republics, Poland, Sweden, Estonia, Latvia and European part of Russia (up to eastern slopes of Ural Mts. – ROHÁČEK, 1984). However, I also examined specimens from Austria and Germany, and, therefore, the records from Switzerland are not surprising.

Anthomyza gracilis FALLÉN, 1823

Material examined: **AG**: Umg. Lenzburg, 1 ♂, 1 ♀, 20.viii.1932, ZÜRCHER leg. (ETHZ); Unter-Siggenthal, Schlatt, 1 ♂, 15.viii.1991, G. BÄCHLI leg. (CGB). **BE**: Biel, 2 ♀♀, 27.–31.vii.1973, G. BÄCHLI leg. (CGB). **GE**: Russin, Les Bailleys, 400 m, 1 ♀, 5.xi.1993, B. MERZ leg. (ETHZ). **GL**: Pragelpass, 1300 m, 2 ♀♀, 5.viii.1991, BÄCHLI, BEUK & MERZ leg. (ETHZ). **GR**: Ausserferrera, 1400 m, 1 ♂, 1 ♀, 14.viii.1991, B. MERZ & A. FREIDBERG leg. (ETHZ); Lenz 3 km N, 1550 m, 5 ♂♂, 4 ♀♀, 11.vii.1996, B. MERZ leg. (ETHZ); Lenzerheide, 1550 m, 1 ♀, 11.vii.1996, B. MERZ leg. (ETHZ); Lenzerheide/Dorf, 1550 m, 1 ♀, 9.vii.1996, B. MERZ leg. (ETHZ); Rothenbrunnen, 650 m, 1 ♂, 25.viii.1991, B. MERZ & A. FREIDBERG leg. (ETHZ); Rothenbrunnen, 630 m, 1 ♀, 19.viii.1993, B. MERZ leg. (ETHZ); Rothenbrunnen, 680 m, 3 ♂♂, 4 ♀♀, 8.viii.1996, MERZ & BÄCHLI leg. (ETHZ); Valbella-Casoja, 1530 m, 1 ♀, 10.vii.1996, B. MERZ leg. (ETHZ); Valbella-Casoja, 1550 m, 2 ♂♂, 2 ♀♀, 13.vii.1996, B. MERZ leg. (ETHZ); Valbella/See, 1490 m, 7 ♂♂, 9 ♀♀, 10.vii.1996, B. MERZ

leg. (CBM); Valbella-See, 1500 m, 2 ♂♂, 1 ♀, 17.vii.1996, B. MERZ leg. (ETHZ). **SZ**: Oberiberg-Ibergereg, 1100–1400 m, 1 ♂, 1.vii.1994, B. MERZ leg. (CBM). **TI**: Biasca, 350 m, 2 ♂♂, 18.v.1991, B. MERZ leg. (ETHZ); Biasca, 12 ♂♂, 12 ♀♀, 17.vi.1995, B. MERZ & G. BÄCHLI leg. (CGB, ETHZ); Biasca-Loderio, 350 m, 1 ♂, 18.v.1995, B. MERZ & G. BÄCHLI leg. (CBM); Gudo, light trap, 1 ♀, x.1995, C. BESUCHET leg. (CGB). **ZH**: Andelfingen, 1 ♂, 21.v.1972, 2 ♂♂, 31.v.1972, R. GLATTHAAR leg. (CGB); Dietikon, 1 ♂, 1 ♀, 6.–9.ix.1974, 2 ♂♂, 3 ♀♀, 20.vii.1989, 1 ♂, 1 ♀, 27.vii.1989, 7 ♂♂, 6 ♀♀, 5.viii.1989, 1 ♀, 13.8.1989, 7 ♂♂, 2 ♀♀, 13.vi.1991, 1 ♂, 4.vii.1991, 1 ♀, 22.viii.1991, 1 ♂, 22.vii.1995, G. BÄCHLI leg. (CGB); Dietikon-Hardwald, 400 m, 2 ♂♂, 2 ♀♀, 15.v.1995, B. MERZ leg. (ETHZ, CBM); Embrach-Haumüli, 430 m, 2 ♂♂, 2 ♀♀, 3.viii.1996, B. MERZ leg. (ETHZ); Flaach/Thurauen, 350 m, 1 ♀, 6.vi.1993, B. MERZ leg. (ETHZ); Illnau, Weid, 560 m, 1 ♀, 17.viii.1978, W. SAUTER leg. (ETHZ); Rorbas, 1 ♀, 8.vi.1972, R. GLATTHAAR leg. (CGB); Winterthur, 1 ♀, 8.vi.1972, R. GLATTHAAR leg. (CGB); Zürich, 600 m, 1 ♂, 1 ♀, 10.vi.1991, B. MERZ leg. (ETHZ); Zürich, 605 m, 2 ♂♂, 14.viii.1987, 686200/248800, B. MERZ leg. (ETHZ); Zürich, 1 ♀, 14.–16.xi.1973, R. GLATTHAAR leg. (CGB); Zürich-Allmend, 430 m, 1 ♀, 11.vii.1996, B. MERZ leg. (ETHZ); Zürich-Allmend, 450 m, 2 ♂♂, 4 ♀♀, 1.v.1995, 1 ♂, 5.v.1995, 1 ♀, 11.v.1995, 2 ♂♂, 17.v.1995, 1 ♂, 14.vi.1995, B. MERZ leg. (ETHZ, CBM); Zürich-Hönggerberg, 1 ♂, 24.–28.vii.1987, G. BÄCHLI leg. (CGB); Zürich-Hönggerberg, 520 m, 1 ♂, 2 ♀, 25.v.1996, B. MERZ leg. (ETHZ); Zürich-Irchel, 500 m, 1 ♀, 24.v.1996, B. MERZ leg. (ETHZ); Zürich-Katzensee, 450 m, 2 ♀♀, 23.v.1995, B. MERZ leg. (ETHZ); Zürich-Katzensee, 2 ♂♂, 23.vii.1991, 2 ♂♂, 30.viii.1992, G. BÄCHLI leg. (CGB); Zürich-Katzensee, 440 m, 1 ♂, 2 ♀♀, 25.v.1996, B. MERZ leg. (ETHZ); Zürich-Waldgarten, 450 m, 2 ♂, 2 ♀♀, 24.v.1996, B. MERZ leg. (CBM); Zürich-Zürichberg, 600 m, 1 ♂, 1 ♀, 16.vi.1992, 1 ♂, 13.viii.1992, B. MERZ leg. (ETHZ); Zürich-Zürichberg, 500–600 m, 1 ♀, 16.viii.1992, B. MERZ leg. (ETHZ).

A. gracilis is the most frequent and common species occurring in various grassland habitats, from marshes and peat-bogs to relatively dry meadows. It formed an overwhelming majority also in the Swiss material examined. Although only several countries of Central and northern Europe are given by ANDERSSON (1984a) in the distribution sentence of this species, it is actually widespread in the western Palaearctic area including southern parts of Europe (I examined specimens from France, Italy, Bulgaria).

Anthomyza macra CZERNY, 1928

Material examined: **GR**: Ausserferrera, 1300 m, 1 ♀, 13.viii.1991, B. MERZ & A. FREIDBERG leg. (CBM).

The species seems to occur mainly in grassy undergrowth of wet deciduous woods, particularly along brooks and rivers in lowlands and submontane areas (ROHÁČEK, 1986). The above record is thus noteworthy because originating probably from highest known altitude. Hitherto, *A. macra* has only been recorded from Sweden, Germany, Austria, Czech and Slovak Republics and Romania (ROHÁČEK, 1986) and European Russia (CET: Zvenigorod, 55°43'N 36°54'E, 130 m, 2 females 30.v.1989, M. BARTÁK leg. et coll.).

Anthomyza neglecta COLLIN, 1944

Material examined: **ZH**: Embrach-Haumüli, 430 m, 6 ♂♂, 9 ♀♀, 3.vii.1996, B. MERZ leg. (CBM, ETHZ).

An uncommon species in Central Europe, associated with *Carex* dominated vegetation in marshes and boggy shores of ponds and lakes (COLLIN, 1944; ANDERSSON, 1984b). Its distribution is insufficiently known; there are records from only northern and Central Europe – Great Britain, Sweden, Czech Republic and Slovakia (cf. ANDERSSON, 1984a; ROHÁČEK, 1987). The above record from Switzerland represents the southernmost occurrence known of the species.

Anthomyza pallida (ZETTERSTEDT, 1838)

Material examined: **GR**: Lenz 3 km N, 1550 m, 1 ♂, 11.vii.1996, B. MERZ leg. (CBM); Samnaun, 1820 m, 1 ♂, 12.vii.1987, B. MERZ leg. (CBM); Zerne/Gondas, 1480 m, 2 ♂♂, 4.viii.1996, MERZ

& BÄCHLI leg. (CBM). **TI**: Bolle di Magadino, 1 ♀, 19.vi.1995, B. MERZ & G. BÄCHLI leg. (CGB). **VS**: Simplon-Gabi, 1 ♀, 1150 m, 21.vii.1991, B. MERZ & S. INGRISCH leg. (CBM).

A. pallida lives in various grassy habitats (ANDERSSON, 1984b) but it seems to prefer *Deschampsia caespitosa* growths in clearings of forests in Central Europe. Its distribution is not precisely known because several other yellow species were confused with it in the past. Reliable records are from Great Britain, northern and Central Europe (ROHÁČEK, 1983; ANDERSSON, 1984a, 1984b). Known to me also from Germany and Austria. Only the females recorded above have longer cilia on 3rd antennal segment than usual in *A. pallida* but its postabdominal structures clearly showed it belongs to this species.

Anthomyza pleuralis CZERNY, 1928

Material examined: **GR**: Surrein, 1 ♀, 11.viii.1991, G. BÄCHLI leg. (CGB).

The species is closely related to *A. macra* CZERNY, 1928, and has also similar habitat requirements. Adults were usually found in undergrowth of wet deciduous forests (ROHÁČEK, 1986). *A. pleuralis* has hitherto been reliably recorded from Great Britain, Sweden, Finland, Czech and Slovak Republics, Poland, Romania, Estonia and the European part of Russia (ROHÁČEK, 1986).

Anthomyza socculata (ZETTERSTEDT, 1847)

Material examined: **GR**: Ftan/Clünas, 2200 m, 1 ♀, 5.viii.1996, MERZ & BÄCHLI leg. (CBM); Zernez/Gondas, 1480 m, 1 ♂, 1 ♀, 5.viii.1996, MERZ & BÄCHLI leg. (CBM).

A boreo-alpine species, widespread at northern latitudes of the Palaearctic Region (Scotland, Norway, Sweden, Finland, Estonia, Russia: NET, WS, ES – ROHÁČEK, 1984) but rarely collected in Central Europe, the only reliable records being from montane areas of Bohemia in the Czech Republic (ROHÁČEK, 1983). The only record from Hungary (SOÓS, 1981) is doubtful considering it was not included in the Catalogue of Palaearctic Diptera (ANDERSSON, 1984a) and no voucher specimen was found in the Hungarian Natural History Museum in Budapest. In Central Europe, *A. socculata* preferably occurs in montane meadows.

Paranthomyza nitida (MEIGEN, 1838)

Material examined: **BE**: Biel, 1 ♀, 27.–31.vii.1973, G. BÄCHLI leg. (CGB). **GL**: Klöntal, 1 ♀, 11.–14.ix.1974, G. BÄCHLI leg. (CGB); same locality, 1000 m, 1 ♀, 5.viii.1991, BÄCHLI, BEUK & MERZ leg. (CBM); Vorauen, 1 ♀, 4.–8.viii.1991, G. BÄCHLI leg. (CGB). **GR**: Ausserferrera, 1 ♂, 13.viii.1991, B. MERZ leg. (CBM). **LU**: Menzberg, 1 ♂, 3.–6.viii.1983, G. BÄCHLI leg. (CGB). **ZH**: Andelfingen, 3 ♀♀, 7.vi.1972, R. GLATTHAAR leg. (CGB); Dietikon, 1 ♀, 3.–10.viii.1984, 1 ♀, 16.–20.vii.1994, 1 ♂, 14.–18.vii.1995, G. BÄCHLI leg. (CGB); Flaach/Thurauen, 350 m, 2 ♀♀, 6.vi.1993, 2 ♀♀, 1.ix.1993, B. MERZ leg. (ETHZ, CBM); Katzenssee, 2 ♂♂, 1 ♀♀, 23.vii.1991, G. BÄCHLI leg. (CGB); Zürich-Adlisberg, 600 m, 1 ♀, 4.viii.1993, B. MERZ leg. (CBM); Zürich-Allmend, 430 m, 1 ♀, 27.vi.1996, B. MERZ leg. (ETHZ).

A common species associated with undergrowth of wet deciduous forests, particularly frequent in lowlands. It is widespread in northern and Central Europe (ANDERSSON 1984a), southernmost records being from Croatia (COE, 1958) and Romania (SOÓS, 1946).

Stiphrosoma sabulosum (HALIDAY, 1837)

Material examined: **AG**: Villigen, 1 ♀ (f.brach.), 4.iv.–10.vi.1986, J. BARANDUN leg. (CGB)

The species (noted for its wing polymorphism – ROHÁČEK, 1996) is associated with grassland habitats, particularly in lowlands. Larvae feed in leaf-sheaths of various grasses. Adults occur in grass tufts near ground and, therefore, are seldom

collected by sweeping method. However, they can be easily obtained by means of pitfall traps or an aspirator (for detail see ROHÁČEK, 1996). *S. sabulosum* is widespread in Europe (ROHÁČEK, l.c.) and is also known from the Nearctic Region (? introduced).

ZUSAMMENFASSUNG

Die bisher nicht bekannte Anthomyziden-Fauna der Schweiz umfasst elf Arten, die zusammen mit Verbreitungsangaben und biologischen Besonderheiten aufgelistet werden. Für *Anthomyza neglecta* COLLIN, 1944, und *A. socculata* (ZETTERSTEDT, 1847) bilden die Schweizer Fundorte die südliche Grenze der Verbreitung. Als besonders interessanter Fund ist ein Weibchen zu erwähnen, das vermutlich zu *Anthomyza anderssoni* ROHÁČEK, 1984, gehört.

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