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Faunistic review of the Fanniidae (Diptera) of Switzerland

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This paper presents a faunistic revision of the Fanniidae of Switzerland, based on a study of all the available material from 13 museums and private collections. In all, some 2000 specimens have been identified or verified, belonging to 54 species. Eighteen species are here recorded for the first time from Switzerland.

Keywords: Fanniidae, faunistics, Switzerland

INTRODUCTION

The Fanniidae are a small family of primitive Muscomorpha (Calyptrata), which comprises some 265 described species worldwide. The family is best developed in temperate regions of the northern hemisphere, and it seems most probable that it originated there in the broad-leaved forest zone.

Most European species are still found today in the forested areas, where their larvae live as saprophages in forest floor humus, decaying vegetation, rotting timber, fungi, birds' nests, mammal runs, or nests of social Hymenoptera. Some have moved out of this environment: several into alpine or subalpine habitats, others into the periphery of man, his dwellings and in association with his domestic animals, with the larvae living in dung, carrion and various kinds of organic refuse. The most important species in this respect is *Fannia canicularis*, the Little House-fly. Adults are of some hygienic importance because of their propensity to settle on human food and their ability to act as passive vectors of bacteria and other pathogens. Larvae have been found in cases of intestinal and traumatic myiasis in man and other animals. *Fannia scalaris*, the Latrine Fly, is another species of hygienic importance, especially in rural areas. Other species (e.g. *F. manicata*, *F. incisurata*, *F. lepida*) may be of importance locally as they can be commonly caught in faeces-baited traps.

Little work had been done on Swiss Fanniidae until the project to catalogue the Diptera of Switzerland began. CUNY (1978) published a faunistic paper on Calyptrates from the Lägern; RINGDAHL (1957) listed species that he had collected in the Alps, and further records are given by PONT (1986), HAENNI (1988), and MEIER & SAUTER (1989). The recent review of European Fanniidae (ROZKOŠNÝ *et al.*, 1997) lists 34 species from Switzerland. The present paper enumerates 54 species, 18 of which are here recorded from Switzerland for the first time.

Adult Fanniidae can be defined as calyptrate flies with meral setae absent, vein M running straight to the wing-margin, vein A_1+CuA_2 very short (not extending for half the distance from its base to wing-margin), and hind tibia with a true dorsal submedian seta (exactly in alignment with the dorsal preapical seta). They may be recognised using the standard keys for European Muscidae, where they have previously been included as a subfamily, tribe or with even lower status (e.g. SÉGUY,

1923; KARL, 1928; RINGDAHL, 1954; HENNIG, 1955; D'ASSIS-FONSECA, 1968; MIHALYI, 1975). Larvae are dorsoventrally flattened, leathery, with simple or ornate processes on the body segments.

Adults and larvae are best identified with the recent key to European Fanniidae by ROZKOŠNÝ *et al.* (1997) and the key to Central European Fanniidae by GREGOR & ROZKOŠNÝ (1995). These can be supplemented by the older Palaearctic monograph by HENNIG (1955) and the key by D'ASSIS-FONSECA (1968) which is particularly good for females.

MATERIAL AND METHODS

This paper is based mainly on the collections of:

- Bündner Natur-Museum, Chur (BNM)
- California Academy of Sciences, San Francisco (CAS)
- Canadian National Collection, Ottawa (CNC)
- Eidgenössische Technische Hochschule, Zürich (ETHZ)
- Muséum d'Histoire Naturelle, Genève (MHNG)
- Musée d'Histoire Naturelle, Neuchâtel (MHNN)
- Musée Zoologique, Lausanne (MZL)
- Naturhistorisches Museum der Burgergemeinde, Bern (NHBB)
- Naturhistorisches Museum, Basel (NHMB)
- Natural History Museum, London (NHML)
- Natur-Museum, Luzern (NML)
- Private collection B. MERZ (CBM)
- Private collection G. BÄCHLI (CGB)

The genera and species are listed alphabetically. The nomenclature follows PONT (1986), with the changes suggested by GREGOR & ROZKOŠNÝ (1995) and ROZKOŠNÝ *et al.* (1997). For each species, the reliable literature records are listed first, followed by the material examined. Usually the full data are given, but for the common species only summary information (cantons and months in Latin numbers) is mentioned.

LIST OF SPECIES

1. *Fannia aequilineata* RINGDAHL, 1945

Literature: PONT, 1986.

AG: Wettingen, 18.VII.1996, 1 ♂ (CGB); Würenlingen, 6.–11.VI.1973, 1 ♂ (CGB). **BE:** Biel, 27.–31.VII.1973, 1 ♂ (CGB). **GE:** Avully, VI.–VII.1995, 1 ♂ (CGB); Charrot, V.–VI.1995, 2 ♂♂ (CBM, ETHZ); Ecogia, V.–VII.1995, 2 ♂♂ (CGB, MHNG); Sézenove, VI.–VII.1995, 1 ♂ (MHNG). **GR:** Andeer, 1.IX.1913, 1 ♀ (ETHZ). **LU:** Menzberg, 3.–6.VIII.1983, 1 ♂ (CGB). **SG:** Rheineck, 14.–17.VIII.1973, 1 ♂ (CGB). **SH:** Merishausen, 8.–10.VIII.1992, 1 ♂ (CGB). **TI:** Bellinzona, 26.–30.VIII.1981, 1 ♂ (CGB); Gordola, 16.–20.VI.1995, 1 ♂ (CGB). **VD:** Cudrefin, 22.VI.1972, 1 ♂ (CAS). **VS:** Binn, 26.VII.1947, 1 ♂ (NHMB). **ZH:** Dietikon, VI.–IX., 17 ♂♂ (CGB, ETHZ); Flaach, 4.–22.VII.1996, 1 ♂ (CGB); Sihlwald, 19.–31.VII.1996, 1 ♂ (ETHZ); Zürich (Hönggerberg, Irchelpark, Käferberg), VI.–IX., 8 ♂♂ (CBM, CGB, ETHZ).

Remark: Most specimens were attracted to beer-traps.

2. *Fannia armata* (MEIGEN, 1826)

Literature: CUNY, 1978; PONT, 1986.

Over 200 specimens have been examined from the cantons **AG, BE, GE, GR, LU, NE, SG, SH, TI, VD, VS, ZH** (BNM, CAS, CBM, CGB, ETHZ, MHNG, MHNN, MZL, NHBB, NHML). Altitude range: 200–1600 m; collecting months: IV.–X.

Remarks: This is one of the most common species of Fanniidae. The ♂♂ are often seen swarming in forest clearings and along the edges of forests. One swarm may contain up to 50 specimens.

3. *Fannia atra* (STEIN, 1895) [New for Switzerland]

ZH: Zürich-Hönggerberg, 24.–28.VII.1987, 1 ♂ (CGB).

4. *Fannia barbata* (STEIN, 1892)

Literature: CUNY, 1978; PONT, 1986.

AG/ZH: Lägern (Eigi, Greppe, Hulligen, Mooshalde, Schwartenfels, Steinbuck), 27.IV.–21.V.1975, 1 ♂, 12 ♀♀ (ETHZ, NHML).

5. *Fannia canicularis* (LINNAEUS, 1761)

Literature: CUNY, 1978; PONT, 1986.

Over 300 specimens from the following cantons have been checked: AG, BE, BS, GE, GR, LU, NE, SG, SH, SO, TI, UR, VD, VS, ZG, ZH (BNM, CAS, CBM, CGB, ETHZ, MHNG, MHNN, NHBB, NHMB, NHML, NML). Altitude range: 200–1800 m; collecting months: II.–X.

The “Little House-fly” is one of the most common synanthropic Diptera species and may be found virtually everywhere in Switzerland.

6. *Fannia carbonaria* (MEIGEN, 1826)

Literature: HENNIG, 1955; PONT, 1986.

The only known record is from GR: Bergün (HENNIG, 1955). No specimens have been seen in course of the present study.

7. *Fannia carbonella* (STEIN, 1895) [New for Switzerland]

GR: Samedan, 16.VII.1985, 1 ♂ (ETHZ); Valbella/Casoja, 17.VII.1996, 2 ♂♂ (CBM); TI: Piora, 20.VII.1983, 1 ♂ (ETHZ).

8. *Fannia clara* COLLIN, 1939 [New for Switzerland]

ZH: Sihlwald, 19.–31.VII.1996, 1 ♂, 1 ♀ (CBM).

9. *Fannia coracina* (LOEW, 1873)

Literature: RINGDAHL, 1957; PONT, 1986.

BE: Lamboing/Prés de Macolin Derrière, 15.V.1993, 1 ♂ (CBM). GL: Richisau, 7.–8.VIII.1991, 1 ♂ (CGB). GR: Valbella/Casoja, 17.VII.1996, 2 ♂♂ (ETHZ). LU: Hasle/Balmoos, 17.VIII.1977, 1 ♂ (NML); Horw, 5.VIII.1964, 1 ♂ (NHML). SZ: Gersau/Oberholz, 8.XI.1979, 1 ♂ (NML). VD: Cudrefin, 22.VI.1972, 1 ♂ (CAS). ZH: Embrach, 29.V.1996, 1 ♂ (CBM); Zürich (Allmend, Katzenssee, Waldgarten, Ziegelhütte, Zürichberg), V.–VIII., 22 ♂♂ (CBM, ETHZ).

10. *Fannia corvina* (VERRALL, 1892)

Literature: PONT, 1986.

GR: Strada, 19.VI.1980, 1 intersex (MHNN). TI: Piora, 20.VII.1983, 1 ♂ (ETHZ). VD: Cudrefin, 22.VI.1972, 1 ♂ (CAS). ZH: Dietikon, 8.–16.VI.1984, 1 ♂ (CGB). Zürich-Zürichberg, 20.V.1993, 1 ♀ (CBM).

The specimen from Strada has the external characters of both sexes; its identity is based on the structure of the surstyli, which agree perfectly with those of *F. corvina*.

11. *Fannia difficilis* (STEIN, 1895) [New for Switzerland]

BE: Biel, 4.–7.VIII.1973, 2 ♂♂ (CGB). **GE:** Louvière, V.–VI.1995, 1 ♂ (CGB). **NE:** Rochefort, 5.–8.VII.1982, 1 ♂ (CGB). **LU:** Menzberg, 3.–6.VIII.1983, 1 ♂ (CGB). **SO:** Mariastein, 21.–25.VII.1973, 1 ♂ (CGB). **TI:** Bellinzona, 26.–30.VIII.1981, 1 ♂ (CGB); Bodio, 14.–26.VIII.1988, 2 ♂♂ (MHNN); Faido, 24.–31.VIII.1981, 9 ♂♂ (CBM, CGB, ETHZ). **UR:** Seelisberg, 4.–7.VIII.1973, 3 ♂♂ (CGB). **VD:** Bex, 28.V.–15.VI.1947, 1 ♂ (NHBB). **VS:** Bürchen, 20.–22.VIII.1993, 1 ♂ (CGB); Guttet, 31.VII.–2.VIII.1993, 2 ♂♂ (CGB); Leuk, 23.VIII.–2.IX.1977, 1 ♂ (CGB); Visp, 13.–15.VIII.1993, 4 ♂♂ (CBM, CGB, ETHZ). **ZH:** Dietikon, 19.–23.VII.1990, 2 ♂♂ (CBM, CGB); Zürich-Hönggerberg, 16.–20.VII.1994, 2 ♂♂ (CGB, ETHZ); 19.–23.VII.1990, 2 ♂♂ (CBM, CGB).

12. *Fannia fuscitibia* (STEIN, 1920) [New for Switzerland]

= *F. coracula* COLLIN, 1958

VS: Leuk-Pfynwald, 19.V.1996, 1 ♀ (CBM).

Remark: The identification of this specimen is tentative because the differences between females of the *carbonaria* group are very slight and not always constant. The presence of this species in Switzerland should be confirmed by collecting the males.

13. *Fannia fuscula* (FALLÉN, 1825)

Literature: PONT, 1986.

BE/SO: Pelzmühletal, 17.V.1959, 2 ♂♂ (NHMB). **GR:** Zerne, 17.–26.VII.1930, 2 ♂♂ (BNM); 6.VIII.1996, 1 ♂ (CGB). **LU:** Horw, 5.VIII.1964, 1 ♂ (NHML); Luzern (NHML); **SH:** Rüdlingen, 2–3.VII.1994, 1 ♂ (CBM). **TI:** Ascona, 3.VII.1963, 1 ♂ (NHMB); Tegna, 5.VII.1963, 1 ♂ (NHMB). **VS:** Staldbach, 15.VII.1966, 1 ♂ (NHMB). **ZH:** Andelfingen, 31.V.1972, 1 ♂ (CGB); Boppelsen, 21.VII.1996, 1 ♂ (CGB); Glattfelden-Bahnhof, 15.V.1993, 1 ♂ (CBM); Robenhausen-Ried, 7.VIII.1993, 1 ♂ (CBM); Zürich (Hönggerberg, Zürichberg), VI.–VIII., 5 ♂♂ (CBM, CGB, ETHZ).

14. *Fannia genualis* (STEIN, 1895)

Literature: PONT, 1986.

VD: Bellevaux/Lausanne, 24.VI.1976, 1 ♂ (CAS); Cudrefin, 5.–6.IX.1972, 2 ♀♀ (CAS). **VS:** Grône-Poutafontana, 18.VI.1996, 1 ♂ (CGB). **ZG:** Maschwanden/Rüss-Spitz, 6.VII.1987, 2 ♂♂ (NML). **ZH:** Zürich-Allmend, 5.V.1995, 1 ♂ (CBM); Zürich-Hönggerberg, 19.–23.VII.1990, 1 ♂ (CGB); 18.VI.1996, 1 ♀ (CBM); Zürich-Zürichberg, 8.V.1996, 1 ♂ (CBM).

15. *Fannia glaucescens* (ZETTERSTEDT, 1845)

Literature: GÜNTART, 1949.

JU: Courrendlin, 31.V.–8.VI.1988, 1 ♂; 21.VII.–4.VIII.1988, 1 ♂ (MHNN). **SH:** Rüdlingen, 7.IX.1996, 1 ♂ (CBM). **ZH:** Oberglatt, 9.VIII.1943, 2 ♂♂ (CBM, ETHZ); Zürich-Katzensee, 23.VII.1991, 2 ♂♂ (CGB).

16. *Fannia hirticeps* (STEIN, 1892) [New for Switzerland]

VS: Leuk-Pfynwald, 15.V.1996, 1 ♂ (CBM).

17. *Fannia immutica* COLLIN, 1939 [New for Switzerland]

GL: Richisau, 7.–8.VIII.1991, 1 ♂ (CGB).

18. *Fannia incisurata* (ZETTERSTEDT, 1838)

Literature: CUNY, 1978; PONT, 1986.

Almost 100 specimens from the cantons **AG, BE, FR, GE, GR, LU, OW, SG, SH, TI, UR, VD, VS, ZH** have been examined (CBM, CGB, ETHZ, MHNN, NHBB, NHML, NML). Altitude range: 200–1700 m; collecting months: III.–X.

19. *Fannia krimensis* RINGDAHL, 1934 [New for Switzerland]

VS: Leuk, 23.VIII.–2.IX.1977, 1 ♂ (CGB).

20. *Fannia lepida* (WIEDEMANN, 1817)

= *F. mutica* (ZETTERSTEDT, 1845)

Literature: CUNY, 1978; PONT, 1986.

AG/ZH: Lägern, 21.V.–30.IX.1975, 1 ♂, 11 ♀♀ (ETHZ, NHML); Würenlingen, 14.VIII.1991, 1 ♂ (CGB). GL: Richisau, 7.–8.VIII.1991, 1 ♂ (CGB). GR: Andeer, 7.IX.1884, 1 ♂ (ETHZ); Lenzerheide-Lavoz, on dead mole, 8.VIII.1992, 2 ♂♂ (CBM); Lenzerheide, 11.–14.VIII.1988, 3 ♂♂ (CBM, CGB); Savognin, 17.–20.VIII.1988, 3 ♂♂ (CBM, CGB); Val Cluozza, 25.VII.1921, 1 ♀ (BNM); Zuoz-Nüd, 7.VIII.1996, 1 ♂ (CGB). TI: Piora, 24.VII.1984, 1 ♀ (ETHZ). VD: Cudrefin, 22.VI.1972, 1 ♀ (CAS). VS: Visperterminen, 23.VII.1992, 1 ♀ (ETHZ).

Remark: This species is clearly more common at higher altitudes.

21. *Fannia leucosticta* (MEIGEN, 1838)

= *F. brevis* (RONDANI, 1866)

Literature: PONT, 1986.

VD: Morges, 1942, 1 ♂, leg. Mme. Hotz (NHBB).

Additional material: 1 ♂ in NHML from Switzerland (coll. GIRSCHNER), but exact locality illegible.

22. *Fannia lineata* (STEIN, 1895) [New for Switzerland]

JU: Courtételle, grenier, coll. 25.I.1981, ex pupa 10.II.1981, ex guano de Chauve-Souris (*Myotis myotis*), 1 ♂, leg. MOESCHLER (MHNN). VD: Commugny, VI.1965, nid de Moineau friquet, 1 ♂, leg. STEFFEN (MHNG).

23. *Fannia lustrator* (HARRIS, 1780)

= *F. hamata* (MACQUART, 1835)

Literature: CUNY, 1978; PONT, 1986.

AG: Bergdietikon, 16.–21.VII.1979, 1 ♀ (CGB); Lägern, 14.V.1975, 1 ♂ (ETHZ); Würenlingen, 6.–11.VI.1973, 1 ♂, 5 ♀♀ (CGB). BE: Bern, 16.V.1932, 1 ♂ (NHMB); Biel, 27.–31.VII.1973, 4 ♀♀ (CGB). BS: Basel, 26.V.1955, 1 ♂ (NHMB). GR: Landquart, 9.–12.VIII.1974, 1 ♀ (CGB). NE: Rochefort, 5.–8.VII.1982, 1 ♀ (CGB). SG: Betlis-Walensee, 24.VI.1995, 1 ♀ (CBM). SH: Merishausen, 6.–10.VIII.1992, 1 ♀ (CGB); 1.VI.1996, 1 ♂ (CBM). TI: S. Salvatore, 19.V.1955, 1 ♀ (NHMB). UR: Seelisberg, 4.–7.VIII.1973, 1 ♀ (CGB). ZH: Dietikon, 30.–31.VII.1983, 1 ♀ (CGB); Dietikon-Hardwald, 15.V.1995, 2 ♀♀ (CBM); Embrach-Haumüli, 29.V.1996, 1 ♂ (ETHZ); Zürich (Höngerberg, Katzenssee, Oerlikon, Waldgarten, Ziegelhütte, Zürichberg), IV.–VII., 7 ♂♂, 5 ♀♀ (CBM, CGB, ETHZ).

24. *Fannia manicata* (MEIGEN, 1826)

Literature: CUNY, 1978; PONT, 1986.

Some 100 specimens from the cantons AG, BE, BS, GR, JU, LU, NE, SO, TI, UR, VD, VS, ZH (CAS, CBM, CGB, ETHZ, MHNN, NHBB, NHMB, NHML, NML). Collecting months: III.–IX.

25. *Fannia melania* (DUFOR, 1839) [New for Switzerland]

AG/ZH: Lägern-Hulligen, 7.VII.1975, 1 ♀ (ETHZ); Lägern-Berg, 26.IX.1975, 1 ♀ (ETHZ).

26. *Fannia metallipennis* (ZETTERSTEDT, 1838)

Literature: PONT, 1986.

VD: Cudrefin, 22.VI.1972, 1 ♀ (CAS). ZH: Flaach/Thurauen, 6.VI.1993, 1 ♂ (CBM).

27. *Fannia minutipalpis* (STEIN, 1895) [New for Switzerland]

NE: Neuchâtel, 3.V.1997, 1 ♀ (MHNN). **ZH:** Andelfingen, 21.V.1972, 1 ♂ (CGB); Zürich-Katzen-see, 19.IV.1997, 2 ♂♂ (CBM); Zürich-Zürichberg, 8.V.1996, 1 ♂ (CBM).

28. *Fannia mollissima* (HALIDAY, 1840) [New for Switzerland]

GR: Dischmatal, 30.V.–24.VII.1979, 1 ♂ (CGB); Scarltal, 24.VII.1923, 2 ♀♀ (BNM). **LU:** Hasle/Balmoos, 13.V.1977, 1 ♀ (NML). **SZ:** Rigi-Staffel, 16.VII.1974, 1 ♀ (ETHZ). **VS:** Grächen, 3.VI.1987, 1 ♀ (ETHZ). **ZH:** Flaach/Thurauen, 21.IV.1993, 3 ♂♂, 2 ♀♀ (CBM); Zürich (Albisgütli, Allmend, Chlösterli, Höggerberg, Waldgarten, Zürichberg), III.–V., 17 ♂♂, 7 ♀♀ (CBM, ETHZ).

Remark: This species is very common around Zürich in spring in deciduous forests, and may be found alongside small ponds and small streams. It is the only *Fannia* species known to feed on pollen as an adult in addition to nectar.

29. *Fannia monilis* (HALIDAY, 1838)

Literature: CUNY, 1978; PONT, 1986.

AG: Lägern, 18.IV.–30.IX.1975, 2 ♂♂, 20 ♀♀ (ETHZ, NHML); Wettingen, 18.VII.1996, 1 ♂ (CGB); Würenlingen, 14.–15.VII.1991, 2 ♂♂ (CGB). **GR:** San Bernardino, VII.1946, 1 ♂ (NHBB); Susch, 6.VIII.1996, 1 ♀ (ETHZ). **LU:** Hasle/Balmoos, 25.X.1977, 1 ♀ (NML). **NE:** Neuchâtel, 24.V.1996, 1 ♂ (MHNN). **SG:** Rheineck, 14.–17.VIII.1973, 1 ♂ (CGB). **VD:** Cudrefin, 22.VI.1972, 2 ♀♀ (CAS). **VS:** Leuk-Platten, 2 ♂♂ (CGB). **ZH:** Gockhausen, VII.–VIII.1988, 4 ♂♂ (CGB); Zürich-Ziegelhütte, 10.V.1997, 2 ♂♂ (CBM).

30. *Fannia nitida* (STEIN, 1895)

Literature: PONT, 1986.

VD: Cudrefin, 5.IX.1972, 1 ♀ (CAS). **ZH:** Flaach/Thurauen, 6.VI.1993, 1 ♂ (CBM); Zürich-Höggerberg, 18.–22.VII.1991, 1 ♂ (CGB).

31. *Fannia norvegica* RINGDAHL, 1934 [New for Switzerland]

BE: Lamboing/Prés de Macolin Derrière, 16.V.1993, 1 ♀ (CBM). **GR:** Ftan, 16.VII.1994, 1 ♀; 20.VII.1994, 1 ♀ (CBM, ETHZ); Zerne/Gondas, 4.VIII.1996, 1 ♀ (CBM). **VS:** Visperterminen, 19.VII.1995, 1 ♀ (ETHZ).

32. *Fannia ornata* (MEIGEN, 1826)

Literature: CUNY, 1978; PONT, 1986.

AG: Lägern, Wettingerhorn, 16.IX.1975, 1 ♀ (ETHZ). **BE:** Biel, 27.–31.VII.1973, 3 ♂♂ (CGB); Oberhofen/Thun, 1 ♂ (CNC). **LU:** Hasle/Balmoos, 25.X.1977, 1 ♀ (NML); Menzberg, 3.–6.VIII.1983, 1 ♂ (CGB). **SO:** Balmberg, 18.VIII.1992, 1 ♂ (CGB). **TI:** Lavertezzo, 30.VIII.1993, 1 ♂ (CBM); Mte. S. Giorgio, 24.VIII.1991, 3 ♂♂, 1 ♀ (CBM, ETHZ). **ZH:** Zürich (Zürichberg, Zoo), VIII.–X., 2 ♂♂, 2 ♀♀ (CBM, ETHZ).

33. *Fannia pallitibia* (RONDANI, 1866)

Literature: CUNY, 1978; PONT, 1986; MEIER & SAUTER, 1989.

Numerous specimens from various localities in the cantons **AG, LU, TI, ZG, ZH** (esp. town of Zürich) (CBM, CGB, ETHZ, NML). Collecting months: (VI.–)VIII.–X.

Remark: Most specimens are found in autumn, when this species is very common in deciduous forests.

34. *Fannia parva* (STEIN, 1895)

Literature: CUNY, 1978; PONT, 1986.

About 100 specimens from the cantons **AG, BE, GL, GR, LU, SH, TI, VS, ZG, ZH** (CBM, CGB, ETHZ, NHML, NML). Collecting months: VI.–IX.

35. *Fannia polychaeta* (STEIN, 1895)

Literature: RINGDAHL, 1957; CUNY, 1978; PONT, 1986.

Many specimens from the cantons: **AG, BE, GL, GR, JU, LU, NE, OW, SH, SO, SZ, TI, VD, ZG, ZH**. (CAS, CBM, CGB, ETHZ, MHNN, NHMB, NHML, NML). Collecting months: VI.–X.

36. *Fannia postica* (STEIN, 1895)

Literature: HENNIG, 1955; PONT, 1986.

GR: Ausserferrera, 18.VI.1994, 1 ♂ (CBM); Ftan, 5.VIII.1996, 2 ♂♂ (CBM); Lenzerheide, 11.–12.VII.1996, 2 ♂♂ (CBM); Sta. Maria i.M., 14.VI.1980, 1 ♂ (MHNN); Valbella/See, 10.VII.1996, 1 ♂ (CBM); Zernez/Gondas, 5.VIII.1996, 1 ♂ (CBM); **VS**: Visperterminen, 17.VII.1995, 1 ♂ (CBM).

37. *Fannia posticata* (MEIGEN, 1826)

= *F. pretiosa* SCHINER, 1862

Literature: MEIER & SAUTER, 1989.

AG: Villnachern, 28.VII.1985, 1 ♂ (ETHZ). **ZH**: Zürich-Hönggerberg, 15.–19.VII.1989, 1 ♂ (CGB); 18.–22.VII.1991, 2 ♀♀ (CGB).

38. *Fannia pruinosa* (MEIGEN, 1826) [New for Switzerland]

JU: Chevenez, 10.–23.VIII.1988, 1 ♂ (MHNN). **VS**: Visp, 9.–11.VIII.1993, 1 ♂ (CGB). **ZH**: Zürich-Zürichberg, 27.IX.1992, 1 ♀ (CBM); Zürich-Zoo, 29.VIII.1993, 1 ♂ (CBM).

Remark: The identification of the female from Zürich-Zürichberg is tentative.

39. *Fannia ringdahlana* COLLIN, 1939

Literature: PONT, 1986 [Misidentification of locality from HENNIG, 1955, p. 79].

GR: Ardez, 6.VIII.1996, 1 ♂ (CBM); Ftan, 20.VII.1994, 2 ♂♂ (CBM, ETHZ); 12.–14.VIII.1978, 1 ♂ (CGB); Lenzerheide, 7.VIII.1992, 1 ♂ (CBM); Scuol, 9.–12.VIII.1978, 3 ♂♂ (CGB); Valbella/See, 10.VII.1996, 1 ♂ (CBM); Zernez, 15.–18.VIII.1978, 2 ♂♂ (CGB); Zuoz/Nüd, 7.VIII.1996, 1 ♂ (CBM). **NE**: Ponts-de-Martel, 20.IV.–19.X.1974, 1 ♂ (CGB). **TI**: Piora, 20.VII.1983, 1 ♂ (ETHZ). **VS**: Guttet, 4.–6.VIII.1993, 1 ♂ (CGB); Leuk, 23.VIII.–2.IX.1977, 1 ♂ (CGB); Visperterminen, 18.VII.1995, 1 ♂ (ETHZ). **ZH**: Boppelsen, 21.VII.1996, 1 ♂ (CGB).

40. *Fannia rondanii* (STROBL, 1893)

Literature: PONT, 1986.

Over 100 specimens from the cantons **AG, GL, GR, SG, SH, SO, SZ, TI, VD, VS, ZH** (BNM, CAS, CBM, CGB, ETHZ, NML). Collecting months: V.–IX.

41. *Fannia scalaris* (FABRICIUS, 1794)

Literature: RINGDAHL, 1957; CUNY, 1978; PONT, 1986.

Some 100 specimens from the cantons **AG, BE, GE, GR, NE, SG, SO, TI, UR, VD, VS, ZH** (CBM, CGB, ETHZ, MHNG, MHNN, NHBB, NHMB, NHML). Collecting months: IV.–X.

42. *Fannia serena* (FALLÉN, 1825)

Literature: CUNY, 1978; PONT, 1986; MEIER & SAUTER, 1989.

More than 200 specimens were examined from the cantons **AG, BE, GL, GR, JU, LU, NE, OW, SH, SO, SZ, TI, VD, VS, ZG, ZH** (BNM, CAS, CBM, CGB, ETHZ, MHNN, NHML, NML). Collecting months: IV.–IX.

Remark: This species is very common in the lowlands, where the adults hover in clearings in forests, sometimes in huge numbers.

43. *Fannia similis* (STEIN, 1895)

Literature: CUNY, 1978; PONT, 1986; MEIER & SAUTER, 1989.

AG: Lägern, 4.–29.VII.1975, 2 ♂♂ (ETHZ); Villnachern, 2.VII.1985, 1 ♂ (ETHZ); Würenlingen, 15.VIII.1991, 1 ♂ (CGB). **GL:** Schwanden-Niedertal, 19.VI.1993, 1 ♂ (CBM). **GR:** Zerne-Gondas, 5.VIII.1996, 1 ♂ (CBM). **JU:** Courrendlin, 22.–30.VI.1988, 1 ♂ (MHNN). **LU:** Eigental/Forrenmoos, 1.VI.1982, 1 ♂ (NML); Hasle/Balmoos, 3.VII.1975, 1 ♂ (NML); Horw, 5.VII.1964, 1 ♀ (NHML). **NE:** Rochefort, 5.–8.VII.1982, 1 ♂ (CGB). **SH:** Merishausen, 30.V.1996, 1 ♂ (ETHZ); Rüdlingen, 2.–3.VII.1994, 1 ♂ (CBM). **TI:** Biasca-Loderio, 16.–20.VI.1995, 6 ♂♂ (CBM, CGB). **VD:** Cudrefin, 2.–5.IX.1972, 3 ♀♀ (CAS). **ZG:** Maschwanden/Rüss-Spitz, 25.VII.1988, 1 ♂ (NML). **ZH:** Winterthur, 8.VI.1972, 1 ♂ (CGB); Zürich-Allmend, 1.V.1995, 1 ♂ (CBM); 6.VII.1994, 1 ♂ (CBM); Zürich-Hönggerberg, VI–VII, 5 ♂♂, 3 ♀♀ (CGB, ETHZ); Zürich-Zürichberg, 16.VI.1992, 1 ♂ (CBM); 22.VII.1996, 1 ♂ (CBM).

44. *Fannia sociella* (ZETTERSTEDT, 1845)

= *F. spinosa* KARL, 1928 (see GREGOR & ROZKOŠNÝ, 1995)

Literature: RINGDAHL, 1957; PONT, 1986; MEIER & SAUTER, 1989 (as *F. sociella* and *F. spinosa*).

Some 100 specimens from the cantons **AG, GL, GR, JU, LU, NE, SG, SZ, TI, VD, VS, ZG, ZH** (esp. town of Zürich) (CAS, CBM, CGB, ETHZ, MHNN, NHBB, NHML, NML). Collecting months: IV.–X., but mostly in V.–VI.

45. *Fannia spathiophora* MALLOCH, 1918 [New for Switzerland]

GR: Ftan, 20.VII.1994, 1 ♀ (CBM). **SG:** Betlis-Walensee, 24.VI.1995, 2 ♂♂ (CBM). **ZH:** Zürich-Adlisberg, 4.VIII.1993, 1 ♀ (CBM).

46. *Fannia speciosa* (VILLENEUVE, 1898)

Literature: PONT, 1986.

LU: Horw, 5.VIII.1964, 1 ♂ (NHML). **ZH:** Zürich-Zürichberg, 6.IX.1992, 1 ♀ (CBM).

47. *Fannia subsimilis* RINGDAHL, 1934

Literature: PONT, 1986.

GR: Andeer/Clugin, 17.VI.1994, 1 ♂ (CBM); Ardez, 6.VIII.1996, 1 ♂ (CBM). **JU:** Courrendlin, 21.VII.–4.VIII.1988, 1 ♂ (MHNN). **LU:** Hasle/Balmoos, 4.VII.1977, 1 ♂ (NML). **NE:** La Chaux-de-Fonds, 31.V.1981, 1 ♂ (MHNN). **OW:** Engelberg, 4.VIII.1964, 1 ♀ (NHML). **ZG:** Maschwanden/Rüss-Spitz, 23.V.–21.VI.1989, 2 ♂♂ (NML). **ZH:** Zürich-Allmend, 1.V.1995, 2 ♂♂ (CBM); Zürich-Hönggerberg, 28.VI.1994, 1 ♂ (CBM); Zürich-Katzensee, 25.V.1996, 4 ♂♂ (CBM).

48. *Fannia umbratica* COLLIN, 1939 [New for Switzerland]

GR: Samedan, 16.VII.1986, 1 ♀ (ETHZ). **TI:** Piora, 24.–26.VII.1984, 2 ♀♀ (ETHZ). **VS:** Visperterminen, 24.VII.1991, 1 ♀ (CBM).

Remarks: The identification of this species should be confirmed by collecting the males. Although the females agree rather well with the characters given by GREGOR & ROZKOŠNÝ (1995) and D'ASSIS-FONSECA (1968), there is still some doubt because of its close similarity to other species.

49. *Fannia umbrosa* (STEIN, 1895)

Literature: CUNY, 1978; PONT, 1986.

AG: Lägern, 13.V.1975, 1 ♀ (ETHZ); Würenlingen, 20.VII.1996, 1 ♂ (CGB). **GL:** Schwanden/Niedertal, 19.VI.1993, 1 ♀ (ETHZ). **GR:** Ardez, 13.VI.1986, 1 ♂ (MHNN); Samedan, 18.VII.1989, 2

♀ ♀ (ETHZ). **VD**: Cudrefin, 5.IX.1972, 1 ♀ (CAS). **VS**: Visperterminen, 21.–23.VII.1993, 2 ♀ ♀ (ETHZ); 17.VII.1995, 1 ♀ (CBM). **ZH**: Dietikon, 8.–16.VI.1984, 2 ♂ ♂ (CGB); 15.–19.VII.1989, 1 ♂ (CGB); Zürich-Hönggerberg, 18.–22.VII.1991, 1 ♂ (CGB); Zürich-Zürichberg, 22.V.1995, 1 ♂ (CBM).

Remarks: The identification of the females is tentative because of their close similarity to *F. postica*.

50. *Fannia verrallii* (STEIN, 1895) [New for Switzerland]

GL: Schwanden/Niederntal, 19.VI.1993, 1 ♀ (CBM).

51. *Fannia vesparia* (MEADE, 1891)

Literature: CUNY, 1978; PONT, 1986.

AG/ZH: Lägern, 7.VII.1975, 1 ♀ (ETHZ). **ZH**: Zürich-Hönggerberg, 19.–23.VII.1990, 1 ♂ (CGB).

52. *Fannia vespertilionis* RINGDAHL, 1934

Literature: HAENNI, 1988.

NE: Peseux, ex pupa IV.1987, 8 ♂ ♂, 17 ♀ ♀ (CBM, ETHZ, MHNN).

53. *Piezura boletorum* (RONDANI, 1866) [New for Switzerland]

AG: Würenlingen, 6.–11.VI.1973, 1 ♀ (CGB). **BE**: Biel, 27.–31.VII.1973, 1 ♂ (CGB). **TI**: Gordola-Bolle, 17.–20.VI.1995, 2 ♂ ♂ (CBM, CGB). **VS**: Grône/Poutafontana, 18.V.1996, 1 ♂ (CBM); Leuk-Pfynwald, 19.VII.–7.VIII.1993, 2 ♀ ♀ (CGB). **ZH**: Dietikon, 16.–20.VII.1994, 1 ♂ (CGB). Dietikon/Reppisch, 22.–25.VIII.1982, 1 ♂ (CGB); Zürich-Hönggerberg, 16.–28.VII.1987–94, 3 ♂ ♂ (CGB).

54. *Piezura graminicola* (ZETTERSTEDT, 1846)

Literature: RINGDAHL, 1957; PONT, 1986.

AG: Würenlingen, 6.–11.VI.1973, 1 ♂ (CGB). **SG**: Rheineck, 14.–17.VIII.1973, 7 ♂ ♂, 1 ♀ (CGB). **SO**: Welschenrohr, 7.VII.1964, 1 ♂ (NHMB). **TI**: Gordola/Bolle, 18.VI.1995, 1 ♀ (CBM). **VD**: Bonmont, 25.VIII.1968, 1 ♂ (NHMB). **VS**: Staldbach, 15.VII.1966, 1 ♂ (NHMB). **ZH**: Dietikon, 15.VI.–14.IX.1985–96, 14 ♂ ♂, 3 ♀ ♀ (CGB); Flaach/Thurauen, 6.VI.1993, 1 ♂ (CBM); 1.IX.1993, 1 ♂ (ETHZ); Freienstein, 21.VII.–12.VIII.1982, 1 ♂, 3 ♀ ♀ (CGB); Zürich (Hönggerberg, Käferberg, Waldgarten, Zürichberg), VI.–IX., 11 ♂ ♂, 6 ♀ ♀ (CBM, CGB, ETHZ).

ZUSAMMENFASSUNG

Die vorliegende Studie umfasst die Bearbeitung der Fanniidae der Schweiz, die in 13 Sammlungen aufbewahrt werden. Insgesamt wurden etwa 2000 Tiere untersucht, die 54 Arten angehören. Achtzehn Arten werden hier zum ersten Mal für die Schweiz gemeldet.

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