Some scuttle flies (Diptera, Phoridae) from the Swiss Jura

SOME SCUTTLE FLIES (DIPTERA, PHORIDAE) FROM THE SWISS JURA

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Résumé

En 1982, des Phoridae ont été capturés à l'aide d'une tente Malaise placée dans une chênaie subméditerranéenne dans le Jura suisse (canton de Neuchâtel). Entre le 30 avril et le 12 août, 85 spécimens ont été capturés, appartenant à 21 espèces largement répandues en Europe à l'exception de *Diplonevra sesquicornis*, *Megaselia aculeata* et *Pseudacteon brevicauda*. L'espèce la plus abondante était *Diplonevra sesquicornis*. Trois espèces, *Hypocera mordellaria*, *Megaselia aculeata* et *Megaselia praeacuta*, sont signalées pour la première fois en Suisse.

Abstract

In 1982 Phoridae were caught with a Malaise trap in a submediterranean oak-forest in the Swiss Jura. From 30.4 up to 12.8.82, 85 specimens had been collected, belonging to 21 species. The most abundant species was *Diplonevra sesquicornis*. Three species, *Hypocera mordellaria*, *Megaselia aculeata* and *Megaselia praeacuta* are recorded for the first time in Switzerland.

Zusammenfassung

1982 wurden in einem submediterranen Eichenwald im Schweizer Jura Phoridae mit einer Malaisefalle erfasst. Vom 30.4. bis zum 12.8.82 wurden 85 Individuen gefangen. 21 Arten konnten determiniert werden. Die häufigste Art war *Diplonevra sesquicornis*. Drei Arten, *Hypocera mordellaria*, *Megaselia aculeata* und *Megaselia praeacuta* werden zum ersten Mal in der Schweiz nachgewiesen.

INTRODUCTION

Phoridae of Switzerland are still very poorly known. Only 184 species are enumerated in the recent Checklist of Swiss Diptera (PRESCHER, 1998), in contrast to 364 species in Germany (PRESCHER & WEBER, 1999). In the Swiss Jura this family has been studied only in a few investigations. BASSET (1985) published a list of species taken from mountain pine tree (*Pinus mugo*) in a High Jura peat-bog. On the other hand, the Muséum d'histoire naturelle in Neuchâtel holds identified pinned specimens from different unpublished surveys. The material dealt with in the present note was caught in the course of an investigation carried out in 1982 by the mean of a malaise trap to study the entomofauna of submediterranean forests of the southern slopes of the Jura mountains (DUFOUR, 1980, HAENNI & DUFOUR, 1983).

STUDY SITE AND METHODS

The survey was conducted in the Jura mountains (NW Switzerland, Canton of Neuchâtel), at a place called Château de Rochefort (Swiss coordinates 531350/ 201750), altitude 780 m. The site is a dry rocky SW slope occupied by a submediterranean oak-forest (*Quercus pubescens*). A vicinous SE slope with deeper soil is occupied by a thermophilous beech-forest (*Fagus sylvatica*). The malaise trap was placed in the thermophilous bushy edge of small xeric meadows (HAENNI & DUFOUR, 1983) and was emptied one or twice a week depending on the season. The material is preserved in alcohol in the collections of the the Muséum d`histoire naturelle in Neuchâtel (MHNN). The identification was carried out by the first author (SP). Because of the limited time only the Phorids in the samples of 30.4.82 up to 12.8.82 were studied (85 specimens). The European distribution is taken from DISNEY (1991).

SPECIES LIST

Though the limited amount of material studied, 21 species could be determined with certainty.

Anevrina thoracica (Meigen, 1804)

1 male (30.4.-6.5.82)
Former records from Switzerland: Cantons of Zürich (WEBER & SCHIEGG, in press), Ticino (PRESCHER & MORETTI, in prep.) and Bern / Solothurn (PRESCHER *et al.*, 2000). Pinned specimens from various localities are present in collections of several Swiss museums.
The larvae of *Anevrina thoracica* are saprophagous (BUCK, 1997).

Borophaga femorata (Meigen, 1830)

1 male (15.6.-17.6.82)
Former record from Switzerland: Cantons of Bern / Solothurn (PRESCHER *et al.*, 2000).
Nothing is known about the development of the larvae.

Borophaga incrassata (Meigen, 1830)

1 male (10.8.-12.8.82)
Former record from Switzerland: Canton of Zürich (leg. B. MERZ, unpublished).
MORRIS (1922) found larvae of St. Mark`s fly (*Bibio marci*) parasitized by larvae of *Borophaga incrassata*.

Conicera tarsalis Schmitz, 1920

1 male (30.4.-6.5.82), 1 male (7.5.-9.5.82)
Former record from Switzerland: Canton of Zürich (WEBER & SCHIEGG, in press).
The development of *C. tarsalis* has been reported from rotting pig kidney (BUCK, 1997). The larvae probably feed on carrion or dung, like those of other species of this genus (*C. similis, C. tibialis, C. schnittmanni).*

Diplonevra abbreviata (Von Roser, 1840)

1 male (6.8.-9.8.82)

Former records from Switzerland: Cantons of Freiburg (SCHMITZ, 1926) and Zürich (WEBER & SCHIEGG, in press). Pinned specimens from various localities are present in collections of several Swiss museums.

The development of this species has been reported from rotting pig kidney, dead snails and fungi (BUCK, 1997).

Diplonevra pilosella Schmitz, 1927

1 male, 1 female (27.7.-1.8.82), 1 male (10.8.-12.8.82)
Former record from Switzerland: Cantons of Bern / Solothurn (PRESCHER *et al.*, 2000). Pinned specimens from various localities are present in collections of several Swiss museums.
COLYER (1950) found an earthworm parasitized by larvae of *D. pilosella*.

Diplonevra sesquicornis (Schmitz, 1927)

4 males (3.6.-6.6.82), 1 male, 1 female (15.6.-17.6.82), 1 male (18.6.-20.6.82), 1 male (24.6.-27.6.82), 1 male (21.7.-1.8.82), 2 males (6.8.-9.8.82), 1 male (10.8.-12.8.82)
Former records from Switzerland: Cantons of Freiburg (SCHMITZ, 1926) and Zürich (WEBER & SCHIEGG, in press).
Nothing is known about the biology of the larvae.

Gymnophora arcuata (Meigen, 1830)

1 male, 1 female (6.8.-9.8.82), 1 male (10.8.-12.8.82)
Former records from Switzerland: Cantons of Freiburg (SCHMITZ, 1926) and Ticino (PRESCHER & MORETTI, in prep.). Pinned specimens from various localities are present in collections of several Swiss museums.
The larvae of *G. arcuata* are necrophagous (BUCK, 1997).

Gymnophora integralis Schmitz, 1920

1 male (13.5.-16.5.82), 1 female (25.5-27.5.82)
Former records from Switzerland: Cantons of Freiburg (SCHMITZ, 1926), Zürich (WEBER & SCHIEGG, in press; B. MERZ, unpublished) and Ticino (PRESCHER & MORETTI, in prep.).
The larval natural history is unknown.

Hypocera mordellaria (Fallén, 1823)

1 male (31.5.-2.6.82), 1 male (4.7.-11.7.82)
First record from Switzerland !
The development of this species has been reported from rotting pig kidney, dead snails and fungi (BUCK, 1997).

Megaselia aculeata (Schmitz, 1919)

1 male (10.5.-12.5.82), 1 male (4.7.-11.7.82)
First record from Switzerland !
The larval natural history is unknown.

Megaselia giraudii (Egger, 1862)

1 male (27.7.-1.8.82), 1 male (2.8.-5.8.82)
Former records from Switzerland: Cantons of Zürich (WEBER & SCHIEGG, in press), Ticino (PRESCHER & MORETTI, in prep.) and Bern / Solothurn (PRESCHER *et al.*, 2000).
The larvae of *M. giraudii* are polysaprophagous (BUCK, 1997). This and related species are presently in revision (BUCK & DISNEY, in prep.), so the above mentioned specimens may belong to another species.

Megaselia latifemorata (Becker, 1901)

1 male (4.7.-11.7.82)
Former record from Switzerland: Canton of Zürich (WEBER & SCHIEGG, in press).
The larvae of *M. latifemorata* are necrophagous (BUCK, 1997).

Megaselia longipalpis (Wood, 1910)

1 male (27.7.-1.8.82)
Former record from Switzerland: Canton of Freiburg (SCHMITZ, 1926).
The larval natural history is not known.

***Megaselia praeacuta* (Schmitz, 1919)**

1 male (20.5.-24.5.82), 1 male (4.7.-11.7.82), 2 males (14.7.-16.7.82)
First record from Switzerland !
OROSI-PAL (1938) found the larvae in a bee hive of *Apis mellifera*.

***Megaselia pseudogiraudii* (Schmitz, 1920)**

1 male (31.5.-2.6.82), 1 male (28.5.-30.5.82), 1 male (10.6.-14.6.82), 1 male (24.6-27.6.82), 2 males (4.7.-11.7.82)
Former record from Switzerland: Canton of Zürich (leg. B. MERZ, unpublished).
Nothing is known about the development of the larvae.

***Megaselia ruficornis* (Meigen, 1830)**

1 male (2.8.-5.8.82)
Former records from Switzerland: Cantons of Zürich (WEBER & SCHIEGG, in press), Ticino (PRESCHER & MORETTI, in prep.) and Bern / Solothurn (PRESCHER *et al.*, 2000).
The larvae are necrophagous. Their development has frequently been reported from dead snails (e. g. HÖVEMEYER, 1985, BUCK, 1997, DISNEY, 1994).

Metopina galeata (Haliday, 1933)

1 female (2.8.-5.8.82)
Former records from Switzerland: Cantons of Freiburg (SCHMITZ, 1926), Neuchâtel (BASSET, 1985), Ticino (PRESCHER & MORETTI, in prep.) and Bern / Solothurn (PRESCHER *et al.*, 2000).
The development of the larvae of *M. galeata* has been reported from rotting beef (BUCK, 1997).

***Phora dubia* (Zetterstedt, 1848)**

1 male (20.5.-24.5.82)
Former record from Switzerland: Canton of Zürich (leg. B. MERZ & M. EGGENBERGER, unpublished).
The larval natural history is not known.

***Phora tincta* Schmitz, 1920**

2 males (4.7.-11.7.82), 2 males (2.8.-5.8.82), 2 males (10.8.-12.8.82)
Former records from Switzerland: Cantons of Freiburg (SCHMITZ, 1926), Zürich (WEBER & SCHIEGG, 2001) and Bern / Solothurn (PRESCHER *et al.*, 2000).
The development of *P. tincta* has been reported from rotting pig kidney (BUCK, 1997).

***Pseudacteon brevicauda* Schmitz, 1925**

1 female (31.5.-2.6.82), 1 female (3.6.-6.6.82), 1 female (4.7.-11.7.82), 1 female (12.7.-13.7.82), 1 female (17.7.-21.7.82), 1 female (10.8.-12.8.82)
Former record from Switzerland: Canton of Ticino (PRESCHER & MORETTI, in prep.).
The larvae are parasitoids of ants (DISNEY, 1994).

One *Megaselia* species could not be determined. It is provisionally named species A.

***Megaselia* species A**

1 male (13.5-16.5.82)
This probably new species is presently under study by Dr. DISNEY.

Beside this, some Phoridae could not be determined to species level. Six males belong to the *Megaselia pulicaria*-complex. For 14 females of *Megaselia* and 6 females of *Phora* there is no valid identification key in literature.

DISCUSSION

All species of this sample are widely distributed in many European countries, with the exception of *Diplonevra sesquicornis*, *Megaselia aculeata* and *Pseudacteon brevicauda*. *D. sesquicornis* is recorded only from Central Europe (Austria, Switzerland, former Czechoslovakia, Germany, Hungary). *Megaselia aculeata*

has been reported from some Middle European countries (Denmark, Great Britain, The Netherlands, Poland). The Swiss Jura is the southernmost place where it has been found up to now. *Pseudacteon brevicauda* has been recorded only in Germany, Great Britain and Switzerland. Its apparent rarity may be due to the parasitic development of the larvae.

Anevrina thoracica, *Diplonevra abbreviata, D. pilosella, Gymnophora arcuata, G. integralis, Megaselia giraudii, M. ruficornis, Metopina galeata* and *Phora tincta* have been recorded from at least four localities in various parts of Switzerland. A wide distribution in this country may be supposed for these species.

The larvae of 10 species feed on carrion, dung, decaying plants or fungi. For three species, parasitic life habits of the larvae have been reported. The larval natural history of 8 species is not known.

The most abundant species of the sample was *Diplonevra sesquicornis* which amounted to 13 % of the total catch and occurred in 7 samples. With a body length of up to 3.3 mm, *D. sesquicornis* is one of the largest Scuttle Flies but nothing is known of its larval biology. According to SCHMITZ (1938-1953) *M. sesquicornis* is "not rare in the mountains". Its distribution may be restricted to mountainous regions of central Europe.

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