

# Flies and midges (Insecta, Diptera varia) from caves of the Grand Duchy of Luxembourg

Dieter Weber

Kirchgasse 124  
D-67454 Haßloch  
dieter.weber124@gmx.de

## Zusammenfassung

Bei der Untersuchung luxemburgischer Höhlen wurden aus den folgenden Dipteren-Familien Tiere gefunden, die noch nicht bestimmt werden konnten: Ptychopteridae, Dixidae, Thaumaleidae, Ceratogonidae, Chironomidae, Bibionidae,

Cecidomyiidae, Dolichopodidae, Lauxaniidae, Pallopteridae, Chloropidae, Lonchaeidae, Tachinidae, Hippoboscidae, Calliphoridae, Empididae, Empididae, Syrphidae, Stratiomyidae, Conopidae, Culicidae, Dolichopodidae.

## Abstract

During the investigation of Luxembourg caves, the following dipteran families were found, but could not be determined yet to species level: Ptychopteridae, Dixidae, Thaumaleidae, Ceratogonidae, Chironomidae, Bibionidae,

Cecidomyiidae, Dolichopodidae, Lauxaniidae, Pallopteridae, Chloropidae, Lonchaeidae, Tachinidae, Hippoboscidae, Calliphoridae, Empididae, Empididae, Syrphidae, Stratiomyidae, Conopidae, Culicidae, Dolichopodidae.

## Résumé

Pendant l'inventaire des cavités naturelles et artificielles de Luxembourg, les familles de diptères suivantes ont été trouvées mais n'ont pas encore pu être déterminées jusqu'à l'espèce: Ptychopteridae, Dixidae, Thaumaleidae, Ceratogonidae, Chironomidae, Bibionidae, Cecid-

omyiidae, Dolichopodidae, Lauxaniidae, Pallopteridae, Chloropidae, Lonchaeidae, Tachinidae, Hippoboscidae, Calliphoridae, Empididae, Empididae, Syrphidae, Stratiomyidae, Conopidae, Culicidae, Dolichopodidae.

## 1 Introduction

Several undetermined families of flies and midges were found during the investigation from 2007 to 2011. Depending on the family, they were found more or less regularly in the caves. This article should at least give an overview on the families and hopefully induce some experts to determine their respective families.

Four meniscus midges (**Dixidae**), one from a railway tunnel, one from a natural cave and two from an iron mine, found between 5 and 20 m distant from the entrance. It can therefore be assumed that they were specifically flying into the caves. Dixidae are rarely found in caves (Weber 2001, 2012).

## 2 Nematocera

Four phantom crane flies (**Ptychopteridae**) were found, all close to the entrance and therefore most probably eutrogloxene. Phantom crane flies are rare in caves. Cavernicolous species are not known.

Mosquitos (**Culicidae**) were found all over the year in nearly every cave. Unfortunately, the preservation is difficult: Preservation in fluids destroys the structure of the wing veins. Therefore Culicidae must be preserved dry. We counted 1268 specimens, 763 from October to December, during the collection period from 2007 until 2011. Only few Culicidae were collected. They are still not determined. Beginning of 2012, we started collecting several hundred Culicidae by using an exhaustor for live determination. The results will be published later (Fig. 1).



**Fig. 1:** Mosquito hibernating in a cave. Foto: Harbusch.

Solitary midges (trickle midges; **Thaumaleidae**) were found treetimes, but all from railway tunnels.

One biting midge (No-see-um midgie, Sand fly, Punkiy; **Ceratogonidae**) was found in the Dolomitgrouf Kelsbaach, close to the entrance. Few biting midges were found in artificial caverns in Germany (Rhenish Palatinate, Havelka & Weber 2011).

46 non-biting midges (**Chironomidae**) were found in caves all over the country. Non-biting midges are found in caves regularly (Weber 2001, 2012).

Two march flies (lovebugs; **Bibionidae**) were found in a natural limestone cave, but directly at the entrance. March flies are found in caves regularly (Weber 2001, 2012), but always in close distance to the entrance.

Gall midges (Gall gnats; **Cecidomyiidae**) are found regularly in summer time in caves. In high abundance they settle the ceiling of the cave entrance. It is assumed that they outlast the midsummer temperatures in the relatively cool cave entrances. They are never found deeper in caves. More than 90 % of the gall midges in caves belong to the sub-family Cecidomyiinae

s.cl. Weber (2012) e.g. lists 21 species from caves in Germany, although only some of the collected specimens are determined. In Luxembourg caves, 88 specimen of Cecidomyiidae were collected. We could not find anyone who could identify the gall midges of Luxembourg.

### 3 Brachycera - Orthorrhapha

Long-legged flies (**Dolichopodidae**) were found 9 times, 7 times thereof from railway tunnels, indicating that they are eutrogloxene. Long-legged flies are reported from caves regularly in several species, but always in low abundance. This corresponds to other regions in Middle Europe, where long-legged flies are found in caves regularly, but never numerous (Weber 2012).

9 balloon flies (**Empididae**) were found in May and in October, mainly at cave entrances.

1 soldier fly (**Stratiomyidae**) was found in May.

11 long-legged flies (**Dolichopodidae**) were found.

## 4 Brachycera - Cyclorrhapha - Aschiza

1 hoverfly (Syrphidae) was found in May.

1 rust Fly (Psilidae) was found in May.

12 thick headed flies (**Conopidae**) were found in April, all from the same cave.

## 5 Brachycera - Cyclorrhapha - Schizophora

Two **Lauxaniidae**, genus *Peplomyza*, were found in a railway tunnel.

One flutter-wing fly (trembling-wing, waving-wing fly; **Pallopteridae**) was found in a natural limestone cave, but directly at the entrance.

Two leaf-miner flies (**Agromyzidae**), genus *Phytomyza*, were found in a railway tunnel.

One frit fly (grass fly; **Chloropidae**) was found in a railway tunnel.

One lance fly (**Lonchaeidae**) was found in a railway tunnel.

One tachina fly (**Tachinidae**) was found in a cave near Muellerthal, directly at the entrance of the cave.

One louse fly (ked; **Hippoboscidae**) was found in summer in the Dolomitgrouf Fronay 40 m distant from the entrance.

One blow-fly (Blue-bottle; **Calliphoridae**) was found in Summer.

All Schizophora listed here are reported rarely from other cave regions in Central Europe (Weber 2012).

## 6 Acknowledgments

Difficult families were determined by A. Petrašiūnas. I thank Jill Yager, Antioch, for checking the English. Christine Harbusch provided a photo. Stefan Zaenker, Fulda, checked the script.

## 7 Bibliography

- Havelka P. & Weber D. 2011. - Ceratopogoniden (Diptera) in künstlichen Hohlräumen von Rheinland-Pfalz und dem Saarland. *Mitteilungen der Pollichia*, 95: 129-132, Bad Dürkheim.
- Weber D. 2001. - Die Höhlenfauna und -flora des Höhlenkatastergebietes Rheinland-Pfalz/Saarland, 4. Teil. *Abhandlungen zur Karst- und Höhlenkunde*, 33: 1088 S., München.
- Weber D. 2012. - Die Höhlenfauna und -flora des Höhlenkatastergebietes Rheinland-Pfalz/Saarland, 5. Teil. *Abhandlungen zur Karst- und Höhlenkunde*, 36: 2367 S., München.